AN INVESTIGATION OF THE IMPACT OF MENTORING
ON STUDENTS’ DECISIONS TO PURSUE PROFESSIONS
IN MEDICINE/HEALTH SCIENCES:
A SOCIOCULTURAL FRAMEWORK
FOR MULTICULTURAL SCIENCE EDUCATION

by

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A thesis submitted in conformity with the requirements
for the degree of Doctor of Philosophy
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AN INVESTIGATION OF THE IMPACT OF MENTORING ON STUDENTS’ DECISIONS TO PURSUE PROFESSIONS IN MEDICINE/HEALTH SCIENCES: A SOCIOCULTURAL FRAMEWORK FOR MULTICULTURAL SCIENCE EDUCATION

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Abstract

In the 21st Century and beyond, it is clear that science and technology will be a catalyst in strengthening economic competitiveness and fostering social cohesion. However, some minoritized students are not engaged in science or related careers in science such as medicine. This study addresses the systemic issue of equitable and accessible science education as a requisite for career acquisition such as medicine. Mentoring is presented as a sociocultural participatory activity for engaging students in science learning. The purpose of this study is to assess the University of Toronto Faculty of Medicine Summer Mentorship Program (SMP) and to use the data to theorize on the mentoring phenomenon. In 1994, the SMP was established as a means of ameliorating the traditionally low participation of Aboriginal and Black students in medicine and other health sciences. For the first 10 years (1994 – 2004), 250 participants enrolled in the program. Recently, ten past mentees of the program matriculated into various medical schools (5 in the Class of 2008 at the University of Toronto, this is significant, as the norm is usually 0 or at most 2). The study utilized a qualitative approach, requiring the collection of semi-structured one-on-one interview data and an interpretive phenomenological methodology to evaluate the data. There was an increased level of school and community involvement when students returned to high school and an increased awareness of the academic and career choices
available to protégés. Mentees indicated that the influence of the SMP followed them much further than the end of the summer and considered it to be an important and defining moment in their educational journey. Communication could be improved so that mentors get a sense of their own impact and for professional development. Recommendations include conducting a study more focused on the impact of the SMP on Aboriginal students who completed the program. Finally, from a theoretical perspective, further work is recommended in order to fine-tune the proposed Mentoring Oriented Teaching and Learning Strategy (MOTALS) framework that incorporates students as natives in a welcoming community of science practice rather than immigrants in a strange land of non-contextual science knowledge.
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Dedication

To my loving wife,

Sonia Maxine,

for her patience, love and dedication.
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CHAPTER ONE: OVERVIEW AND CONTEXT OF STUDY

The soul of civilization depends on education. Specifically, science education is a key to unlock the gate of civilization in the technological world we live in. From the invention of the light bulb to the invention of computers, the fundamental principles for these advancements lay in the heart of science education. Hence, to increase inventions like these, science literacy must be a priority if a nation is to compete globally. The backbone for science literacy is effective curriculum. (Saleh & Khine, 2009, p. 7)

Introduction

Education is the gateway to success—employment, social mobility, and good health (Canadian Institute for Health Information, 2006; Council of Ministers of Education Canada & Statistics Canada, 2009; Marmot, 2005; OECD, 2006, 2010a; Phelps, 2006; World Bank, 2005). Education contributes to the development of creative products and the enrichment of scientific and cultural knowledge. It also gives individuals the tools they need to participate in social and economic life (Council of Ministers of Education Canada & Statistics Canada, 2009; OECD, 2010c). Moses (2001), the civil rights activist, educator and founder of the Algebra Project, opined that math-science literacy is a prerequisite for full citizenship in society.

In the words of Barack Obama, President of the United States: “Education is no longer just a pathway to opportunity and success, it’s a prerequisite” (Obama, 2009b). In his 2009 historic address to the National Academy of Science, which “represents the largest commitment to scientific research and innovation in American history," President Obama stated, “since we know that the progress and prosperity of future generations will depend on what we do now to educate the next generation, today I am announcing a renewed commitment to education in mathematics and science" (Obama, 2009a). Even
though levels of educational attainment continue to rise among White majority students and some ethnoracial minority groups, there are some, such as Blacks and Aboriginal Peoples, whose education prospects are hindered by inadequate education services and conditions associated with poverty, race/ethnicity, limited English proficiency, disability, and family circumstance. These groups continue to be plagued by low academic achievement and its social consequences such as unprecedented job losses and unemployment, incarceration, enduring poverty, health vulnerabilities, and family destabilization (Au, 2009; Duffy, 2005; Galabuzi, 2004; Horvat, 2006; Ogbu, 1987; Raphael, 2004; Rodriguez, 2002; Rumberger, 2005). Underachievement however, is not a new phenomenon, it has been a persistent area of concern for educators, governments, parents, and students for at least 55 years. Gowan (1955) presents one category of underachievers—gifted students—as "one of the greatest social wastes of our culture " (p. 247). I would venture to say that this statement is true for all underachievers, and beyond the social cost, there are significant personal wastes which include lost opportunities for advanced educational experiences (e.g., careers) and personal development.

Despite ongoing under-utilization in some areas of science at the bachelor’s level of education (Statistics Canada, 1998), it has been well recognized by the international community that in the 21st Century, education particularly in the area of science and technology will be a key factor and catalyst in strengthening economic competitiveness, increasing employment opportunities and fostering social cohesion (Committee on Developments in Science of Learning, Bransford, Brown, Cocking, & Committee on Learning Research and Educational Practice, 2000; Dempsey, 2004; OECD Directorate for Science Technology and Industry, 2004). Choosing careers in science and technology
will benefit under-represented Aboriginal and Black students directly through employment. More importantly however, as Canadians, we will all benefit from the unique perspectives to science and technology based on the values implicit in Aboriginal knowledge and ways of knowing (Canadian Council on Learning, 2007). The First Nations people view themselves not as custodians, stewards, or having dominion over the Earth, but as an integrated part in the family of the Earth. Aboriginal scientific thought is shaped by their language and their language is shaped by their culture that has produced it (Krugly-Smolska, 2002; Montgomery, 1996). They claim the Earth as their mother and the animals, plants and minerals as their brothers and sisters (Aikenhead, 1997; Hindelang, 2006).

Although this challenge of under-representation of minorities in science is not just a science careers pipeline issue, it is a large part of the problem. Indeed, “we need scientists and engineers to produce knowledge that allows humans to control their environment and therefore to guarantee the survival of the species” (Roth, 2009, p. 1). Yet, more than ever, minoritized students are not engaged in science nor do they opt for careers in science such as medicine; they do not see science as attainable and relevant to their lives (Basu & Barton, 2007; Clarke & Rossi, 2003; Hodson, 2009; Thomson, Roush, Smith, & Holcomb, 1984; Visions of Science, 2009; Warren, Ballenger, Ogonowski, & Hudicourt-Barnes, 2001). Further, in light of an emerging body of research that suggests that a set of broad "21st Century skills"—such as adaptability, systems thinking, complex communication skills, and the ability to solve non-routine problems—are valuable across a wide range of jobs in the national economy, our current science learning strategies
should focus on meeting the needs of all students especially marginalized subgroups (Hilton, 2010).

Evidently, students are not enrolling in science courses at the secondary or post-secondary levels, thus impacting their participation in science and health careers (Roth, 2009). In a very recent ground-breaking Canadian study, Frenette (2009) investigated the gap between youth career aspirations and the actual distribution of occupations in the economy (see Figure 1.1).

![Figure 1.1. The percent distribution of occupations in the Canadian economy.](image)

Source: Statistics Canada, Youth in Transition Survey (YITS), Cycle 1 and 2; 2001 Census (Frenette, 2009, p. 11).
The gap was highest in occupations in natural and applied sciences as well as health. The author posited that the gap between aspirations and realizations may be explained by unfulfilled aspirations to complete university and that the evidence suggested that knowledge of educational requirements is related to academic performance and socioeconomic background. It was not possible to draw any conclusions with regards to race/ethnicity because the collection of race data was not allowed at that time (Statistics Canada, 2008a). This study however, is significant in light of earlier empirical findings of Bandura and colleagues (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001) that posit a causal structure through which socioeconomic, familial, academic, and self-referent influences operate in concert to shape children’s career trajectories.

Based on the strong correlation between race and socioeconomic status (Ornstein, 2000, 2006) these results corroborate the under-representation of Blacks and Aboriginals in science and health occupations (Clarke & Rossi, 2003; Krugly-Smolska, 1993). However, Finnie and Meng (2003) in their study of minorities, cognitive skills, and the incomes of Canadians found a large disparity in the cognitive abilities of minorities but cautiously stated that they found no evidence of an income gap based on skin colour of Canadian-born visible minorities. Rather, the White-minority income gap could be explained by numeracy and literacy variables (Finnie & Meng, 2003). In a recent Canadian health human resources report (Statistics Canada & Health Canada, 2009), it was revealed that older students (18-20 year-olds) are more likely to follow through on their health career aspirations than younger cohorts (15 year-olds) (see Figure 1.2).
Figure 1.2. From aspirations to an occupation in health to postsecondary education and employment outcomes six years later.


In light of these two recent Canadian studies noted, the two questions remaining are: How do we move minoritized students from career aspirations to career acquisitions in science and health? What factors are responsible for influencing the changes in health career aspirations among youngsters? In Chapter 2, I have argued that there are underlying historic and culturally unresponsive practices in science pedagogy that are to some extent responsible for the science career deficiencies among some minoritized groups (Alsop, Bencze, & Pedretti, 2005; Bandura et al., 2001; Chemers, Hu, & Garcia, 2001; Lee, 2005b; Moses & Cobb, Jr., 2001; Rennie, 2005; Tippins & Nichols, 2001).
It is also recognized that certain racialized groups, Blacks and Aboriginals for example, are being left behind in terms of participation in key areas such as science and science related professions such as medicine (Anisef, Sweet, James, & Zeng, 1999; Cervantes, 2003; Clarke, 2005, 2006; Clarke, 2006; Forster & d'Ercole, 2005; King, 2005; OECD, 1999; Vanneman, Hamilton, Baldwin Anderson, & Rahman, 2009). Although there have been sporadic improvements over the past decade, the learning needs of minoritized students such as Blacks and Aboriginals are generally inadequately supported under current educational systems in Canada (Braithwaite & James, 1996; Cummins, 2001; D'Oyley & James, 1998b; Maynard & Martini, 2005). With respect to science education, this inadequacy has very far-reaching impacts on the gross under-representation of these racialized students in medical and other specialized health sciences professions (Dhalla et al., 2002; Krugly-Smolska, 1995; Maynard & Greenfield, 2005). One of the long-term health and socioeconomic implications for this science careers production process (pipeline) problem, is the lack of a diverse and culturally competent medical workforce that can effectively service the distinct medical needs of

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1 In Canada, “visible minorities” are defined based on the Employment Equity Act definition as persons, other than Aboriginal peoples, who are non-Caucasian in race or non-White in colour and include Chinese, South Asian, Black, Filipino, Latin American, Southeast Asian, Arab, West Asian, Japanese, Korean, other visible minorities and multiple visible minorities (Government of Canada, 2005b). Note that “Aboriginal” is not simply a descriptive term but refers to a distinct group of Canada’s first peoples comprising First Nations, Inuit and Métis. “Black(s)” is used instead of “black” to denote reference to a distinct ethno-racial group rather than a descriptive term. Also, “Black will be used more generically to those anywhere in the world who are phenotypically or self-identified as persons of African ancestry” (Lee, 2005b, p. 47). African American or African Canadian will be used specifically to refer to Blacks in the United States or Canada respectively. Similarly, “White” is used instead of “white” to denote Caucasians.

The Ontario Human Rights Commission retires the term "minority group" in favour of "racialized persons," a category that goes beyond skin colour and ethnic background. "Racialization extends to people in general but also to specific traits and attributes, which are connected in some way to racialized people and are deemed to be 'abnormal' and of less worth," it says. "Individuals may have prejudices related to various racialized characteristics." Those characteristics may include name, accent or manner of speech, clothing and grooming, diet, beliefs and practices, leisure preferences, places of origin and citizenship. A similar argument is presented for the use of “minoritized groups or persons” rather than “minority groups”. “Minoritized connotes marginalization and systemic discrimination rather than simple under-representation by numbers (Ontario Human Rights Commission, 2005; Robinson, 2004).
the fast-growing segment of racialized Canadian population (Betancourt, Green, Carrillo, & Park, 2005; Canadian Institute for Health Information, 2004; Raphael, 2004; Williams & Jackson, 2005).

In a report commissioned by the Premier of Ontario and the Ontario Ministry of Education, the Honourable Bob Rae posed the very important question as to how we can increase participation and success in postsecondary education (Rae, 2005). The author of the report also recognized that many students face significant barriers and challenges in accessing and completing higher education. Of significance, is the very low participation of Aboriginals in teaching and the medical professions (Kunz, Milan, & Schetagne, 2004; Rae, 2005). The picture in the rest of Canada as a whole is not much different. A report from the Federal Government of Canada stated that members of visible minorities are rarely found in professional and senior management positions (Government of Canada, 2005b).

Out of 78,773 visible minorities, only 191 are senior managers, which represents 0.2%” (p. 9). This is a gross under-representation of minoritized peoples because, in 2001, 13% of the Canadian population considered themselves as belonging to a minority group as defined in the Employment Equity Act (Government of Canada, 2005b).

In the United States, achievement gaps, access to educational opportunities, as well as enrolment and participation in various professions such as medicine have been well-defined with respect to both ethno-racial and socioeconomic variables (Berliner, 2005; Vanneman et al., 2009; Woodson, 1990), thus leading to the development of various evidence-indicated interventions (Mac Iver & Farley, 2005; Murtadha & Watts, 2005). In Canada, however, the problem of educational access and participation is far less defined with respect to ethno-racial variables and therefore less studied from this
perspective (Finnie & Meng, 2003). Lack of disaggregated achievement data by race as well as other dimensions of difference due to racial profiling concerns creates a major setback in providing intervention for groups that are most needy (Ontario Human Rights Commission, 2003).

Relatively recently in Canada, the necessary questions were included in the sociocultural information section of the census survey to allow data on ethno-cultural origin to be collected (Statistics Canada, 2008a). This is a progressive step in the direction of providing evidence-based intervention. The next step should be the institution of policies and procedures requiring school districts to disaggregate student performance data and to publicly report results for racial and ethnic majorities and minorities, low-income students, limited English proficient, and students with disabilities (Prince, 2004). This move will provide the necessary data to track accountability at various levels.

The aggregated data that is currently being collected and reported mask the extent of underachieving students. This lack of essential data (such as socioeconomic, language and racial profiles), in turn, creates confusion and considerable disagreement among both government and policymakers regarding policies and procedures needed to provide targeted interventions that would ameliorate educational inequities experienced by minoritized groups. In an effort to provide much needed educational intervention for Aboriginal students, the Aboriginal Education Office of the Ontario Ministry of Education established the program *Bridges to Success for First Nation, Metis, and Inuit Students*. This program recognizes the foundational importance of acquiring data on Aboriginal student achievement in order to develop implement, evaluate and monitor
programs to support the needs of Aboriginal students. *Bridges to Success* is designed to help Ontario school boards develop effective policies and practices for voluntary, confidential Aboriginal student self-identification (Aboriginal Education Office & Ontario Ministry of Education, 2007a). The above approach that is being implemented to meet the needs of Aboriginal students in Ontario is very encouraging and could serve as a model to address the needs of other racialized groups (Aboriginal Education Office & Ontario Ministry of Education, 2007a, 2007b; Ontario Ministry of Education, 2009).

The Government of Canada, under the leadership of Prime Minister Paul Martin (2003-2006), provided some encouraging initiatives through its action plan on racism (Government of Canada, 2005a). This plan stated that, “Canadians will be helping to achieve a shared vision of an inclusive society—a Canada for all—where everyone is treated with dignity and respect, where there’s a helping hand when needed, and where no one is left behind” (p. 56). In order to ensure that no one is left behind and that the “helping hand” is extended to those who are most needy, the necessary disaggregated data is required. In this study, the SMP was developed as a much-needed helping hand in secondary school science to “level the playing field” for under-represented groups such as Blacks and Aboriginals in medicine and the health sciences (Clarke, 2005; Government of Canada, 2005a; University of Toronto, 2000).

Even though racism, classism, and cultural imperialism often more deeply restrict the life opportunities of individuals than do sexism, gender issues in science and technology education such as the traditional underrepresentation of females—with its consequent disempowering and sociopolitical spin-offs—significantly mirror those of
race (Blake, 1993; Harding, 2005; National Academy of Sciences, 2009; Rosser, 1990). Rosser (1990) posits that,

insuring that science and technology are considered in their social context with assessment of their benefits for the environment and human beings may be the most important change that can be made in science teaching for all people, both male and female. (p. 72)

She also notes that this “change is exemplary of the positive effects that innovative efforts to attract women to science may have" (p. 72). As is the case with women in science we are challenged to question what is wrong with science and science teaching that it fails to attract minoritized students? Rosser (1990) advocates for “changing science to consider and encompass feminist perspectives valuing female approaches and concerns, science will begin to include the diversity necessary to help benefit all human beings." (p. 72). The long and well documented research of targeted intervention for girls in science and technology which includes feminist approaches to science pedagogy, enhanced hands-on opportunity to learn, networking opportunities, mentoring, nurturing of self-awareness and sharing of experience should serve as a road-map for what can be done for minoritized Canadian students in science (Bystydzienski, 2006; Rand, 1989; Sheffield, 2005; Tang, 1999, 2006).

In a large nationally representative, longitudinal United States study, researchers found hands-on lab activities—relatively infrequent in high school science classes were related to all students' performance, but especially to the performance of girls (Burkam, Lee, & Smerdon, 1997). This finding corroborates a growing body of research that implicates the importance of hands-on/active involvement of students in science classroom as a means to achieve success for all students especially underrepresented groups (Braithwaite & James, 1996; Cummins, 2001; D'Oyley & James, 1998b; Maynard
In chapter 2, I have argued that a growing sector of the Canadian population—racialized students, who are also generally poor—face significant systemic barriers (linked to unresponsive school science experience) to accessing postsecondary education, especially in areas leading to professional careers in science and applied science such as medicine. While being aware of the pervasive symptomatic academic under-achievement rampant among minoritized groups, this study addresses the larger systemic issue of equitable and accessible quality science education as a requisite for career acquisition. The study also addresses the characteristics of quality accessible school science education programs and how minoritized students are encouraged to participate.

**Conceptual Framework**

This study draws heavily upon Vygotskian sociocultural theory (Eames & Bell, 2005; Rieber & Carton, 1993; Wells, 1999) as it percolates and inter-weaves with disparate yet connected bodies of knowledge, spanning time, space, and culture. These various corpuses of knowledge include curricular orientations (Christodoulou, Varelas, & Wenzil, 2009); parental involvement (Jeynes, 2003); indigenous non-traditional science knowledge, which address the humanness of education in both specific and universal ways (Arellano, Barcenal, Bilbao, Castellano, Nichols & Tippins, 2001; Gitari, 2005, 2008; Hindelang, 2006; Snively & Corsiglia, 2001; Villegas, Neugebauer, & Venegas, 2008); confidence (McGee, 2003); mentoring (Ayyavoo, Tzau, & Nagi, 2005; Christodoulou et al., 2009; Hall, 2003; Klinck et al., 2005; Lee, Buxton, Lewis, & LeRoy, 2006; O'Brien, Yin, & Reilly, 2009; Thomas, Jr., Leslie, & Cynthia, 2008; Visions of Science, 2009); identity (Fulani, 2000; Roth, Hwang, Lee, & Goulart, 2005; Wenger,

In the review of the relevant literature in chapter 2, from a sociocultural perspective, more detail will be presented on the inter-connections of some of the above-mentioned bodies of knowledge with respect to what makes a quality accessible school science education program (Tippins, Mueller, van Eijck & Adams, 2010). In this study, a sociocultural view of learning is portrayed as “a mediated, situated and participatory activity within a socially and culturally determined community of practice” (Eames & Bell, 2005, p. 153). More specifically, the goal of this investigation is to understand the science learning experiences of minoritized students with respect to mentoring as a pedagogic strategy and how to best meet their needs in order to improve their academic success and optimize their chances for career acquisition in medicine and medical sciences.

**Context of Study and Problem**

In 1994, the University of Toronto Faculty of Medicine, in collaboration with the Association for the Advancement of Blacks in Health Sciences (AABHS) and Toronto District School Board, established the University of Toronto Faculty of Medicine
Summer Mentorship Program (UTFMSMP)—will be subsequently called SMP—as a targeted intervention for ameliorating the traditionally low participation of Black and Aboriginal students in medicine and other health sciences (University of Toronto, 2000). During the first 10 years (1994 – 2004), 250 participants enrolled in the program. In 2004, 10 past mentees of the program were attending various medical schools—five in the Class of 2008 at the University of Toronto, according to Dr. M. F. Rossi and D. Ali (personal communication, June 15, 2004) this is significant because the norm is usually none, or at most 2. The first physician from the Summer Mentorship Program who graduated from the University of Toronto started his residency program in ophthalmology at a teaching hospital in Toronto in 2004. Over 30% have matriculated into various graduate programs and other professional schools. Further, better than 50% of the mentees have enrolled in undergraduate programs in various universities.

Although there have been some anecdotal reports of the success of the program, there has been no formal evaluation or assessment to determine its overall effectiveness in meeting the needs of the target groups. The purpose of this study therefore, is to investigate the impact of University of Toronto Faculty of Medicine Summer Mentorship Program on mentees and to provide stakeholders with some insights into its benefits. From a theoretical perspective, the study will provide an interrogation of the role of mentoring in school science learning within the framework of Vygotsky’s cultural-historic activity theory (Arievitch & Haenen, 2005; Chaiklin, Hedegaard, & Jensen, 1999; Dennen, 2004; Eames & Bell, 2005; Lemke, 2001; Rogoff, 1995; Roth et al., 2005; Roth & Lee, 2004) and communities of practice (Tippins, Tobin & Nichols, 1993; Wenger, 1998; Wenger, McDermott, & Snyder, 2002).
Research Questions

Based on the lived experiences of the participants, to what extent is the SMP successful? Based on the participants’ experiences, what are the factors contributing to the success (or otherwise) of the program?

Assumptions Underlying Research

It is assumed that somewhere between the initial exposure to the summer mentorship program and the time of interviewing or observation, mentees are exposed to a number of enabling factors, which might serve to enhance academic success, especially in science, and will assist them in making decisions to pursue professions in medicine/health sciences. Enabling factors are defined here, as factors that make it possible (or easier) for mentees to change their behavior or their environment pertaining to academic (science) achievement and career (medicine/health sciences) decision making. Enabling factors—derived from Bandura’s (1986) sociocognitive theory—include resources, conditions of living, sociocultural supports, and skills that facilitate a behavior's occurrence (Bandura, 1986, 1997b). It is also assumed that the data generated by the interview method used in this study represent the honestly reported life experiences of informants/respondents prior to, during, and after the mentoring experience (Atkinson, Coffey, & Delamont, 2003; Bernard, 2000; Ryan & Bernard, 2000). Real, concrete subjects (individuals/informants/respondents) live lives with meaning and these meanings have a concrete presence in the lives of these people (Derrida, 1972). This method relies upon the subjective verbal expressions of meaning given by the individuals being studied, these expressions being windows into the inner lives of these persons. Categories of “meaning” will emerge from the verbal expressions
and will become the data upon which an “understanding” of the research question is reached (Nestor, 2001).

There is, however, no absolutely clear window into the inner life of an informant/respondent, for "any window is always filtered through the glaze of language, signs and the process of signification. And language, in both its written and spoken forms is always inherently unstable, in flux, and made up of the traces of other signs and and symbolic statements” (Denzin, 1989, p. 14; Kress, Jewitt, Ogborn, & Tsatsarelis, 2001; Medway, 2003). Despite these shortcomings of language and other preconceptions (Wallace & Louden, 1997), it is assumed that a particular meaning that has been constructed from the data can be assessed by readers. My role as a situated qualitative researcher, inclusive of personal history and biases, is to reconcile these methodological conundrums with the human fact that the informants/respondents in this study (SMP) are real and honest people reporting their real-life experiences within social and cultural contexts (Symon & Cassell, 1998; Turner & Bruner, 1986).

**Limitations of the Study**

Transparency about the limits of a study “establishes the boundaries, exceptions, reservations and, qualifications inherent in every study” (Creswell, 1994). These limitations are important because they identify potential weaknesses that should be considered when analyzing the data and drawing conclusions. Presumably due to inadequate record keeping, in the case of some mentees only names were given to the researcher instead of complete application forms (see Appendix F). This presents some limitations with regards to available data which could have been incorporated in the study for additional triangulation. This study is limited by the honesty of the participants’
responses during the interviewing process. Although participants are strongly encouraged to respond honestly and were told that their anonymity would be protected, there is no guarantee that respondents answered with complete honesty. Further, this study is limited by my ability as a qualitative researcher to minimize bias due to personal background and preconceptions (Wallace & Louden, 1997).

As a science teacher/educator, I have a vested interest in the academic achievement and long-term success of all students. I have a keen interest in programs and interventions such as the SMP that enhance my own teaching area. Also, as a Black Jamaican-Canadian immigrant who has personally experienced marginalization and racism, I am particularly interested in programs and interventions that will enhance the long-term career success of racialized students who continue to be systemically underrepresented and even shutout of progressive careers such as medicine. It is impossible to dissociate my cultural and social history from my person as a researcher; however, in order to minimize bias, I am cognizant of this vested interest and have been particularly diligent in checking my actions and procedures during this investigation. For example, during interviewing I would be very careful not to express my own emotions when respondents particularly mentees and mentors, were passionately expressing their concerns about volatile issues such as racism in the school system and community.

Rationale for Study:

Implications for Educational Theory and Practice

The purpose of this study is to determine if the SMP is successfully meeting the needs of the target groups and also to explore the factors that may be responsible for its success. In my effort to understand the success/enabling factors, I aim is to shed some
light on what makes science learning truly engaging, thus leading to career options in a field such as medicine. The focus of this study is on success/enabling factors. However, the flipside of this investigation would be systemic disenabling racist practices and ideological mindset such as structural inequalities, contextual biases, limited opportunities to learn, variability in assessment and evaluation processes, detrimental views of and interactions with families and, poor instruction and classroom management. Harry and Klingner (2006) noted that “racist practices may be so interwoven into the affective landscape of classrooms as to be hard to isolate and document” (p. 40). In his ground-breaking article, Cummins (2001) was convinced that we need to challenge our exclusion of human relationships (sociocultural effects) from our understanding of what constitutes effective education in order to achieve academic achievement for all students.

Relatively recently, the Ontario Ministry of Education released the King report, which revealed that less than 60% of students graduated in 4 years from the new Ontario Curriculum—compared with other provinces, for example, British Columbia: 72%, New Brunswick: 83%, and Nova Scotia: 82% (King, Warren, Boyer, & Chin, 2005). King and colleagues noted that, “credit loss in required courses is the biggest factor affecting graduation rates.” Though useful, this “credit loss” factor in itself is very complex, for example, who are losing credits and why are they losing these credits. This “credit loss” factor requires further “teasing out” in order to provide truly useful data for long-term solutions, perhaps in the form of targeted intervention for identified students. Relevant questions that should be addressed include: Who are the non-graduating students and what groups of students by socio-economic and ethno-racial identities are at risk of not
achieving graduation expectations? Though extensive in his coverage, King did not address these fundamental questions in his report.

In this study, a theoretical perspective is used to argue for a more critical consideration of socio-cultural learning theory as a conceptual framework for guiding, understanding, and strengthening students’ learning (Engestrom, 2005; Engestrom, Miettinen, & Punamaki, 1999; Enyedy, 2003; Tuomi-Greohn & Engestrom, 2003). Socio-cultural learning theory (SCLT) or cultural historical activity theory (CHAT) posits that each of us can only be understood in relation to our culture, and identifies learning as a situated social enterprise—an endeavour that occurs through social interactions among youth and between youth and adults as they engage in various activities (Center for Activity Theory and Developmental Work Research, 2009; Cole, Levitin, & Luria, 2006; Engestrom, 2005; Engestrom et al., 1999; Enyedy, 2003; Luria, 1979; Roth & Lee, 2007; Tuomi-Greohn & Engestrom, 2003). This theory helps to identify key features of environments that support learning (Honig, McDonald, & Gallagher, 2005; Murphy & Hall, 2008; Roth, 2009). These features are used to examine science learning and organize the findings of this study on the success/enabling factors/youth competencies revealed by this research on the summer mentorship program. However, from a theoretical perspective, the question is how socio-cultural theory and mentoring are related. Through use of critical analysis of the data, the study is also designed to contribute to theory building about the pedagogical dynamics of mentoring in science education from a cultural historical activity framework.

Also, from a practical perspective, science will continue to play a pivotal role in sustaining the knowledge society of the 21st Century and beyond. Are Canadian schools
ready and prepared to effectively develop and manage the science learning needs of their growing diverse populations? In a very recent report, Statistics Canada projected that by 2031, 30% of Canada’s population will comprise visible minority persons (Statistics Canada Demosim Team, Malenfant, Lebel, & Martel, 2010). Schools have a central role to play in fitting the diverse student population for the world of work within skilled labour or professional careers that need science learning prerequisites (OECD, 2000). It is my expectation that this research will contribute to our understanding of the multiple complexities and social repercussions associated with identity and learning science (Bell & Lewenstein, 2009; Cummins, 2001; Duschl, Schweingruber, & Shouse, 2007; Olitsky, 2005; Roth et al., 2005; Roth & Tobin, 2007; Scanlon, Murphy, Thomas, & hitelegg, 2004; van der Linden & Renshaw, 2004; Yerrick & Roth, 2005). I also anticipate that this research will be of direct interest and benefit to government, university, college, and school administrators; policy and decision makers; program evaluators; parents, students and classroom teachers. Further, it is my goal to contribute to our common understanding that educators are constantly learning, challenged by new ideologies and evolving as effective teachers for all students and that different ways of knowing and teaching can be both liberating and valuable.

Sources of Data and Data Analysis

This qualitative, phenomenological research study explores the phenomena of lived experiences of stakeholders involved in the SMP. The stakeholders included as participants in the study consist of past mentees, current mentees, mentors, school teachers/guidance counsellors/liaisons, and administrative/faculty personnel involved in the program since its inception in 1994 (see Appendix 2). Target group students—
Aboriginals and Blacks, were recruited as mentees from participating school boards in the Greater Toronto Area via an application process through the school’s guidance office (see Appendix F). As the researcher, I collected semi-structured interview data, which included the stakeholders’ perceptions, beliefs, and understandings, during interviews with 32 purposefully sampled participants in the program. Of the study participants, 12 participants were past mentees (the first cohort of the SMP), 6 participants were current mentees in the program, 5 participants were mentors for the program, 5 participants were school liaisons who were teachers or guidance counsellors, and 3 participants were administrators or faculty members in the program. The mentorship experience consists of six weeks of formal intervention which includes classroom activities such as lectures and seminars as well as out-of-class exercises—visiting doctors’ offices, hospital wards, and operating rooms (see page 10 of Appendix F). The program also incorporates a voluntary indefinite post-6-weeks aspect in which mentees are free to contact their mentors for advice or other support. The interviews of the non-mentee participants—mentors, teacher liaisons, and administrators serve to triangulate the stories of the mentees (Guba, 1981; Penn Towns & Serpell, 2004; Schwandt, Lincoln, & Guba, 2007). Based on the nature and goals of this research, as well as the Vygotskian theoretical framework (Arievitch & Haenen, 2005; Chaiklin et al., 1999; Dennen, 2004; Moustakas, 1994), Moustaka’s (1994) seven-step modified van Kaam method was the optimal choice of data analysis for this study.

The goal of this study is to determine the success of the SMP through a deep and rich understanding of the mentoring phenomenon as experienced by various categories of respondents. Phenomenology seeks to study the conscious experiences of individuals as
they are lived every day with the intent of describing the essences of these experiences (Farber, 1967; Moran, 2005; Moustakas, 1994; Pollio, Henley, & Thompson, 1997). The phenomenological analysis design aligns with the goals of the study and provides guidance and techniques for conducting semi-structured, in-depth interviews (Valle, 1998). Data derived in phenomenological studies is primarily from descriptions of the phenomenon obtained in interviews (Morrow, 2007; Moustakas, 1994; Suzuki, Ahluwalia, Arora, & Mattis, 2007). The van Kaam data analysis method, as modified by Moustakas along with NVivo 8® software, was used to synthesize the data gathered from the reduction and imaginative variation steps (further details are covered in the methods in chapter 3). The results generated from both enabled the intuitive integration of the essences and meanings of the lived experiences of participants with regard to the impact of the SMP on mentees.

**Organization of the Thesis**

The overall chapter-by-chapter reporting of this study follows a general chronological order; however, in several chapters a thematic approach has been adopted to assist the reader in following the development of ideas and concepts holistically. The reader may wish to read in a sequence that best suits his/her interest. The aim is to provide the reader with an authentic knowledge-enhancing experience with respect to mentoring as a strategy for enhancing school science learning and exposing students to associated career pathways within a non-threatening community of practice. I believe that there is a place for universalism in scientific discourse but I do not think it should be at the expense of cross-culturalism or multiculturalism, there is enough room for co-existence (Lewis & Aikenhead, 2001; Montgomery, 2003; Siegel, 2002). Hodson (1999b) opines
that, “within an individual’s personal framework of understanding they [Western and non-Western science] can coexist and can be separately accessed, as and when appropriate” (p.789). From a critical theory perspective, I think the stiff, sterile, often incomprehensible, impersonal language of Western scientific discourse is also responsible for perpetuating imperialism, isolating, and keeping at bay some youngsters and minoritized groups who perhaps would otherwise become engaged in the science enterprise (Hodson, 1999b; Kincheloe, 1998; Krugly-Smolska, 2002; Montgomery, 1996). As a science educator from a minoritized group, I am committed to accessible scientific knowledge (universal access) and the use of relevant language of scientific discourse as important elements of social justice in science education (Hodson, 1999a). At the slight risk of being judged self-indulgent, I will demonstrate my commitment to these values by writing this work in the first person whenever and wherever possible.

Chapter 1 introduces the context for this study and why the topic was of importance and interest to me as a science educator and a member of a minoritized group. Chapter 2 presents a review of the literature with regards to the current educational achievement status of racialized students, primarily Blacks and Aboriginals, and their comparisons with data from other jurisdictions such as the United States and the United Kingdom. This chapter also addresses sociocultural learning theory and mentoring within the context of cultural historical activity theory and communities of practice.

Chapter 3 is devoted to the methodological approach adopted in this study. Semi-structured interviews were used in this phenomenological study in order to understand the lived experience of a group of minoritized students. What is the meaning of the stories that they construct about their lives during the mentoring experience? How does the
articulation of their stories empower them to make career decisions? The interviews of
the other participants—mentors, teacher liaisons and administrators are used to
triangulate the stories of the mentees. In this chapter, there is also a focus on evaluative
inquiry, ethical considerations, data collection, data management, and interpretation.

Chapter 4 documents the implementation of the data collection procedures and the
inductive data analysis process using the van Kaam method as modified by Moustakas
(1994). The emergent themes are outlined in relation to the two research questions.
Chapter 5 is concerned with discussing the findings of the study in relation to the research
questions and the current literature. Finally, Chapter 6 comprises the concluding remarks,
implications, and recommendations that are offered for the reader’s reflection.
CHAPTER TWO: REVIEW OF THE LITERATURE

Learning in the real world is situated in a dynamic system, not one in which single variables are a deciding factor, nor ones in which participants in the activities of learning (both in and out of school) are passive blank slates or wells filled with useless knowledge, beliefs and feelings. This understanding of learning is not only the challenge for the effective education of African American children but of all children. (Lee, 2005a, pp. 73-74)

The study of science must develop generic skills, creative and critical thinking, problem-identification and problem solving skills, and entrepreneurial awareness. Above all, science education must be relevant so that students recognize the link between it and real-world issues and problems. (Expert Panel on Sciences Ontario Ministry of Education and Training, 1997, p. 5)

Even though the focus of this investigation is science pedagogy, a number of the principles that I will address in this review will be equally applicable to other curriculum areas. In this chapter, I will draw attention to the state-of-the-art of multicultural science education in Canada in relation to other jurisdictions such as the United States. The notion being, an understanding of the scope of the problem of science education for all will provide a wider lens for forging insights and possible solutions. Also, from a culturally responsive perspective, I will seek to explore analytical tools and conceptual frameworks that underpin science learning. I will also take into account the dynamic interactions between identity, cultural funds of knowledge, learning environments, mentoring, and other pedagogic practices (Lee, 2005a). This chapter is divided into two main sections, in section I, I will focus on the current educational achievement status of racialized/minoritized students within the Canadian context. I will also compare some of the challenges experienced by minoritized students in other jurisdictions such as the
United States. In section II, I will address socio-cultural learning theory and mentoring within the context of cultural historical activity theory and communities of practice.

**I. Current Educational Achievement Status of Racialized Students: An Overview**

Data from PISA 2003 and 2006 indicate that the educational challenges posed by family background, socio-economic context, and migration status are not only strongly linked to student outcomes, they are the main determinants of student performance over and above the influence of school.\(^2\) School education must therefore seek to overcome socio-economic inequalities and, at the same time, utilize the benefits that diversity brings to schools and classrooms. A key recommendation from the PISA studies is that schools should do better in building on the emotive capital of immigrant students as a driving force for enhancing their learning. One way in which they can do this is to use the strength and flexibility of their teachers - but of course for this to be effective teachers must receive the appropriate support and training (OECD, 2010a, p. 4).

Multiculturalism is a living and growing reality etched into the Canadian landscape over the last 65 years (Joshee & Johnson, 2008; Minister of Citizenship Immigration and Multiculturalism, 2009). Though not without significant challenges, especially with respect to group rights, Moodley (1995) stated, “Canada is one of the few democratic societies that has addressed the issue of cultural and linguistic pluralism, incorporated it into its definition of national identity, and formulated it as a formal state policy of multiculturalism” (p. 801). This value is written in the *Canadian Multiculturalism Act of 1988* and revised annually:

> The Government of Canada recognizes the diversity of Canadians as regards race, national or ethnic origin, colour and religion as a fundamental characteristic of Canadian society and is committed to a policy of multiculturalism designed to preserve and enhance the multicultural heritage of Canadians in the economic, social, cultural and political life of Canada. (Minister of Citizenship Immigration and Multiculturalism, 2009)

Some pundits have argued however, that the emphasis of Canada on multiculturalism might decrease a strong sense of self and increase cultural group identification at the expense of Canadian social cohesion (Joshee & Johnson, 2008). Compared to the United States with 11% immigrant population, Canada has historically depended on immigrants (15% of the population) for its survival. Policies that support the integration of immigrants into the Canadian society would seem a logical direction especially in the face of stagnant to declining birth rates (Joshee & Johnson, 2008; Statistics Canada, 2008b). It is particularly important that the appropriate authorities such as education planners, pay attention to the fast-changing demographics (Anisef & Lanphier, 2003; Council of Ministers of Education Canada & Statistics Canada, 2003; Statistics Canada, 2008b).

The massive post-war European immigration prior to the 1960s is currently being replaced by significant numbers of immigrants from Asia and the Middle East along with Africa, the Caribbean, and Central America, as well as the expanding Aboriginal population (Anisef & Lanphier, 2003; Statistics Canada, 2008b; Statistics Canada, 2008c). It is also projected that by 2031, 30% of Canada’s population will comprise visible minority persons (Statistics Canada Demosim Team et al., 2010). Yet, the pedagogic strategies remain essentially Eurocentric with very little signs of changing (Cummins, 1996, 2001, 2008). If the educational needs of the growing immigrant and Aboriginal population are not met now, we can expect serious and significant social and economic implications in the not-too-distant future (College Board, 1999; Freeman, 2005). The same discourse on academic disengagement and failure that were rampant among minoritized students in the 1990s and before have not significantly changed
(Ogbu, 1990b). There are already clear warning signals of social unrests due to disengaged and educationally ill-prepared youngsters (Freeman, 2005; McMurtry & Curling, 2008). In the sad words of Randall Robinson (Robinson, 2000):

> Our children have no idea who they are. How can we tell them? How can we make them understand who they are before the ocean became a furnace incinerating every pedestal from which the ancient black muses had offered inspiration? What can we say to the black man on death row? The black mother alone, bitter, overburdened, and spent? Who tells them that their fate washed ashore at Jamestown with twenty slaves in 1619? (p. 217)

Freeman (2005) commenting on the global status of Blacks, notes that as a result of the lack of Black parents to be the beneficiaries of education,

> In many cases, they are unable to transmit education to their children, which impacts students’ transition into school and their experiences once in school (e.g., difficult cultural capital and lack of information), which in turn, impacts the educational outcomes of future generations. This would be considered a nonmonetary cost because what is hurt most is the ability of generations who are uneducated to instill the aspirations and motivation to continue schooling. (p. 150)

For the social and economic benefit of the entire society, the need for seamless intervention to support these minoritized groups to buck these trends is clearly indicated.

**The Challenges of Schooling: Assessment, Identity, and Learning**

Canada, unlike the United States, has a comprehensive federal multicultural policy in place (Joshee & Johnson, 2008). There are, however, considerable disconnects between the “letter” of the policy and the way it is implemented in the day to day schooling experiences of racialized students, as evidenced by their poor academic achievements (Begin & Caplan, 1994; Cummins, 2008; Dei, 1999; Dei, Mazzuca, McIsaac, & Zine, 1997; James & Burnaby, 2003; Joshee, 2009; Joshee & Johnson, 2007; Joshee & Johnson, 2008; Lewis, 1992; McMurtry & Curling, 2008; Ontario Royal
Commission on Learning, 1995). The overall academic achievement of Aboriginal students in Canada for example is appalling and over the past few years started to get some well-deserved attention (Aboriginal Education Office & Ontario Ministry of Education, 2007b).

In his consultative report back in 1992, Stephen Lewis wrote about racialized students in Ontario: “it is Black youth that is unemployed in excessive numbers, it is Black students who are inappropriately streamed in schools, it is Black kids who are disproportionately dropping-out” (Lewis, 1992). Unfortunately, 16 years later, The Roots of Youth Violence report, authored by former cabinet minister Alvin Curling and former Ontario chief justice Roy McMurtry did not present better news (McMurtry & Curling, 2008). Clearly, something is systemically wrong and educators along with policymakers and other stakeholders have a moral responsibility to work together to find solutions.

In a number of areas, the Canadian experience is not much different from our U.S. neighbours, in that regard, there is much that we could learn from their more extensive history. The United States College Board (1999) issued a warning, "The rapid changes that are occurring in the racial and ethnic composition of the nation [United States] bring a new sense of urgency to improving the educational opportunities and outcomes of students of colour." This need has become “a moral and pragmatic imperative” (p. 2) because, “when a great many individuals—and entire groups of people—do not have a genuine chance to develop their academic talents fully, our society is much poorer for their lack of educational opportunities ... this is fundamentally unjust and potentially an enormous source for social divisiveness” (College Board, 1999). It is clear we are seeing the very costly results in Aboriginal communities and the Greater Toronto Area for non-
compliance with this warning (McMurtry & Curling, 2008; McNeil & Guilmette, 2004; Proulx, 2000). If we focus on effectively educating all our youth, including minoritized subgroups, we will reap several benefits beyond increased economic activity—less demand for social services such as corrections and welfare, and more citizens who make informed choices regarding health, lifestyle, personal finance, and retirement saving all levels of government resources and regulation in these areas (Phelps, 2006).

Apple’s (2007) observation of the struggle for social justice in education is a continuing battle not only in the United States but also in Canada. Many of the diversity issues debated in the 1930s and 1940s still remain on the multicultural agenda (Joshee & Johnson, 2008; Kluger, 2004). Despite the lack of clear demonstrable results of multicultural and diversity education, Joshee and Johnson (2007) argued that “we cannot say with any certainty what difference a single multicultural education policy might make. But we do know from history and the present what can happen when social injustice is allowed to flourish” (p. 12).

In light of the foregoing discussion, the question becomes how do we go about addressing the educational inequities and the associated disconnects with our federal multicultural policy and thereby help to narrow the academic achievement gaps. Boone and Chan (2005) reported that the ways in which the policy is understood “differ dramatically, as illustrated by the many different approaches to multicultural education that have resulted from this policy” (p. 96). In addition to several multicultural educational concepts and strategies currently available (Banks, 2009; Hines, 2003; Hodson, 2008; Robinson, Wolffe, Hunt, & Hoerr, 2002; Trumbull, Rothstein-Fisch, Greenfield, & Quiroz, 2001; Tippins & Nicols, 2001), Boone and Chan (2005) suggested
a family- and teacher-friendly process of cross-cultural “dialogical understanding” by entering into a collaborative conversation among teachers, parents, students, and other stakeholders using experiential storytelling where diverse narratives are shared, thus leading to enhanced “interpretative competence” across the instructional and personal curriculum. The Ontario Ministry of education for example, is taking this direction in its recent policy framework for First Nation, Métis, and Inuit education (Aboriginal Education Office & Ontario Ministry of Education, 2007a).

From a quantitative perspective, assessing and evaluating the longitudinal academic progress of racialized Canadian students in the area of science education presents some real challenges, not only because of lack of extensive disaggregated achievement data by race, but also because of the large variability among minoritized students themselves (Cummins, 2008; Finnie & Meng, 2003; Toronto District School Board, 2004; Yau & O'Reilly, 2007). Only relatively recently in Canada, the necessary questions were included in the sociocultural information section of the census survey to allow data on ethno-cultural origin to be collected (Statistics Canada, 2008a). Consequently, the quantitative research picture of academic progress of minoritized Canadian students’ school science is extremely limited. This lack of quantitative data could be responsible for the very slow progress in providing evidence-based intervention for the suspected groups (Duffy, 2005; Learning Point Associates, 2004; Rumberger & Palardy, 2005). It should be noted, however, that improved test scores per se, do not necessarily create a community of learners where all stakeholders—teachers, students, parents, and administrators—experience a sense of ownership in developing students’ intellectual potential and ultimate career choices (Shedroff, 2009).
In the most recent Program for International Assessment of Science (PISA) study, Canada ranked third overall and immigrant students in Canada out-performed immigrant students across all OECD countries (OECD, 2007). PISA gives the most comprehensive international picture of science learning today, exploring not only how well students perform, but also their interests in science and their awareness of the opportunities that scientific competencies bring, as well as the environment that schools offer for science learning. The Program assesses almost 400,000 15-year-old students in 57 countries for outcomes in three domains: reading, mathematics, and science. It focuses on what students can do with what they have learned in school, at home, and in the community. The program was first implemented in 2000 and is repeated every three years with each cycle providing detailed assessment in one of the three content domains (OECD, 2009a). In 2006, science was the major assessment domain while reading and mathematics were included as minor domains (OECD, 2007a). In Ontario the Education Quality and Accountability Office (EQAO) coordinates the assessment. For a detailed analysis of the performance of Ontario’s students the reader is referred to their report (Educational Quality and Accountability Office (EQAO), 2008).

Most wide-scale studies such as PISA, are aggregate in nature and do not comprehensively evaluate the real-world realities of parental involvement as well as the personal interaction of teachers and students doing curriculum in their classroom (Beard & Brown, 2008; Ginsberg & Wlodkowski, 2009; Noguera, 2003, 2008). However, in support of the argument for a socio-cultural approach to science education, this very comprehensive international assessment places the performance of students, schools, and countries in the context of their social background and identifies (Bassani, 2008; Enyedy,
2003; Gauvin, 2005; Ginsberg & Wlodkowski, 2009; Lee, 2005b; OECD, 2005b; OECD, 2006b; Roth & Lee, 2007; Roth & Tobin, 2007; Trumbull et al., 2001; Wlodkowski & Ginsberg, 2003). By showing that some countries succeed in providing both high quality education and equitable learning outcomes, PISA sets ambitious goals for others (OECD, 2004; OECD, 2007).

Though comprehensive and useful, the focus and audience of large-scale quantitative assessments such as PISA are somewhat different from more in-depth exploratory qualitative investigations, they cater to policymakers and technocrats who wish to make political decisions (Cummins, 2008). Humanistic notions of power and identity are absent from studies such as PISA. Looking at the qualitative literature however, there is a sense of significant power relations in the everyday educational process inside the classroom (Boone & Chan, 2005; Clark, 1989; Codjoe, 2001; Cummins, 2008; Dei et al., 1997; Ginsberg & Wlodkowski, 2000; Ginsberg & Wlodkowski, 2009; Henry, 1994; Mahoney, 2002; Markowitz & Rosner, 2000; McMurtry & Curling, 2008; Wlodkowski & Ginsberg, 2003). It is important to note, however, that perspectives about the inclusion of culture into the curriculum differ widely, and these differences in opinion may touch upon potentially sensitive issues (King, 2005; Lee, 2005b). In an effort to achieve some level of “interpretive competence”, Boone and Chan (2005) suggested some ways such as narrative discourse—sharing experiential stories in which teachers, parents, and students may perceive the practices of incorporating aspects pertaining to culture and identity into the curriculum. Hodson (1999a) also notes that:

- Personalization of learning means taking account of the knowledge, experience, needs, interests and aspirations of each learner, regardless of
their sociocultural background, and acknowledging that cultural factors outside the immediate environment of the school play an important role in the development of students’ scientific concepts and, therefore, in the ways they respond to curriculum experiences. (p. 217)

Over the past several decades, a number of sub-disciplines such as the anthropology and sociology of education have contributed to our understanding of how students’ diverse social identities both influence and are shaped by schooling (Cazden, John, & Hymes, 1972; Ogbu, 1987; Ogbu, 1990b; Varene & McDermott, 1998). Similarly, research in cognitive sciences has described how students learn the disciplinary knowledge that constitute the curriculum (Sinatra, Beck, & McKeown, 1992; Wineburg, 2001). In more recent times however, there is a significant focus in bringing together these two disparate bodies of knowledge in systematic and productive ways in order to better inform our understanding of the learning needs and characteristics of the increasing diverse student populations (Wortham, 2004). This recent connection can be summarized as what Packer (2001) calls an “ontological” approach to learning—learning that changes not just what the learner knows (which would be “epistemological”) but also who the learner is. In other words, Wortham (2004) posits that:

To learn is to take up a new practice, to change one’s position in a community. Thus learning can change identity and the self. When children learn to read, or to do arithmetic, or to understand evolution, they become people who participate in new social activities such as reading the newspaper, shopping, or discussing human nature. (p. 716)

According to Packer, schools are “more than places where young people are taught knowledge and skills; they are the crucibles wherein children are transformed” (p. 1). Even more important, from a critical perspective, “schools give direction to our society – they can perpetuate the status quo or create new future. And this means that those who can control our schools may exert a significant influence on societal change” (Packer,
It should be noted however, that pioneers such as Vygotsky (1978, 1987), Luria (1979), and later Lave and Wenger (1991) were far ahead of this recent trend and have attended to the connections between learning and social identity.

There are many aspects to identity and its impacts on racialized group members. Racial identity for example, perhaps for reasons such as—legacies of slavery/colonialism, academic underachievement, overrepresentation in penal institutions, underrepresentation in high status careers and positions of responsibility—is one of the most studied constructs among African-Americans (Cross, 1991; Seaton, Scottham, & Sellers, 2006). Identity issues could have dual impacts on minoritized group members. On one hand, minorities can internalize the dominant culture's stereotypes and beliefs about their group which lead to negative self-concept (see Cross, 1991 for review). Moreover, having to deal with unfair treatment and resource inequities can lead to poor physical and psychological health for ethnic minorities (Allison, 1998; Institute of Medicine, 2003; Kunz, Milan & Schetagne, 2004). On the other hand, ethnic identity has the potential to buffer minoritized group members from the negative consequences of ethnic prejudice and discrimination and general daily stressors (see Shelton, 2005 for review).

It is not known exactly how the buffering effect of identity is achieved, but very recent social neuroscientific data suggest an involvement of the so-called “mirror-neuron-system” (neuronal activity that allow individuals to ‘mirror’ other people’s actions and emotions) (Gutsell & Inzlicht, 2010). The University of Toronto researchers had study participants view a series of videos while hooked up to electroencephalogram (EEG) machines. The participants—all White—watched simple videos in which men of different races picked up a glass and took a sip of water. They watched White, Black, South Asian
and East Asian men perform the task. Typically, when people observe others perform a simple task, their motor cortex region fires similarly to when they are performing the task themselves. However, the researchers found that participants' motor cortex was significantly less likely to fire when they watched the visible minority men perform the simple task. In some cases when participants watched the non-White men performing the task, their brains actually registered as little activity as when they watched a blank screen. Their data corroborate previous research that shows people are less likely to feel connected to people outside their own ethnic groups (Allen & Eby, 2007a; Byrne, 1971; Downey, Eccles, & Chatman, 2005; Sanchez & Colon, 2005; Shelton et al., 2005).

Gutsell and Inzlicht posited that there is a basic difference in the way people's brains react to those from other ethnic backgrounds and that observing someone of a different race produced significantly less motor-cortex activity than observing a person of one's own race. In other words, people were less likely to mentally simulate the actions of other-race than same-race people. The researchers also reported that the trend was even more pronounced for participants who scored high on a test measuring subtle racism. The “mirror-neuron-system” is thought to be an important building block for empathy by allowing people to 'mirror' other people's actions and emotions. The researchers foresee significant implications for their findings in the area of cognitive perspective-taking exercises, for example, to increase empathy and understanding, thereby offering hope to reduce prejudice especially in pedagogic contexts. Earlier research by Bowman and colleagues (1999) proposed a theory of homogeneity whereby people generally prefer to be mentored by and to mentor those from their own racial or ethnic group but we do not know the exact mechanisms that underlie this behaviour. The research of Gutsell and
Inzlicht may have significant implications for same-race mentoring as well as increased numbers of classroom teachers from minoritized backgrounds to service the growing diverse population.

Identity and learning, particularly science learning has become an area of active contested scholarship in recent times. As implied earlier, Roth and colleagues (2007) note that the problematic nature of identity arise from the notion that there are at least two aspects to the nature of identity. On one hand, a person appears to have a relatively stable core identity, which undergoes development that is articulated in autobiographical narrative construction and reconstruction of self such as reference of a 20-year-old man to his photograph at the age of 5. On the other hand however, some post-modernist scholars describe identity as an unstable, fragmented, and contextual phenomenon (Giddens, 1991). For example, in some situations we could feel powerless and may be observed by others as being unattractive. In another context, we could be the focus of attention and wield certain amount of power which is attractive to others. In other words, from one setting to the next, our identities as revealed by our transactions with others change (Roth & Tobin, 2007).

In light of these arguments, social identification can be defined as the dualistic process through which individuals and groups are distinguished as publicly recognized categories of people. The two primary components are:

(a) Social categories of identity that circulate through time and space, and

(b) the characteristics or behaviours of individuals that are interpreted with reference to these social categories in (Wortham, 2004).
Admittedly, this scenario and definition present a seemingly dialectical conundrum—how can our identities be continuous and discontinuous at the same time, stable and frail, context-independent and situated? Also, how does this dual identity construct play out in the daily lives of minoritized students?

These two questions are interrelated. Based on the reference to Packer’s (2001) ontological approach to learning, some insight is already given into the first question regarding the continuity and discontinuity of identity. The second question concerning the daily lives of minoritized students, who like all other students bring some aspects of their social identity with them to school, the psychological and sociological impact of the schooling experience will determine how these youngsters change and engage the world as well as the kinds of persons they will ultimately become (Packer, 2001; Roth & Tobin, 2007; Wortham, 2004; Yancey, Siegel, & McDaniel, 2002). Further, regarding the congruity or compatibility of identity development in instructional planning and implementation Gay (1987) states:

The learning experiences planned for students, the methods and materials used to teach, the pacing and timing of instruction, and students' readiness should be synchronized. For educators to maximize their teaching effectiveness with ethnic youths, the "whats" and "hows" of curriculum and instruction must be agreeable to the students' attitudinal and emotional dispositions as well as their intellectual capabilities. (p. 50)

If the initial identity that these minoritized students bring to school are not valued, validated, and respected (as is usually the case) then, based on ontological approach theory the resultant identity will be socially undesirable and problematic. Gay (1987) concurs:

Students' levels of ethnic identity influence their senses of reality and psychological dispositions, thereby affecting how they respond to school environments and instructional processes. Therefore stages of ethnic
identity must become essential elements in the diagnostic profiles of student readiness if instructional efforts are to be most beneficial to Afro-American and other ethnic minority youths. Conversely, the disregarding of ethnic identity development when diagnosing students' needs and potentials can produce a domino effect through the educative process. Students caught up in the midst of "encountering ethnic confrontations" who are ignored or misdiagnosed on this point, may experience exacerbated psychic traumas, suffer adversely in intellectual activities, become socially isolated, and/or chronic discipline problems. (p. 50)

There is no lack of evidence—both nationally and internationally—for this kind of undesirable outcome for minoritized youngsters especially Aboriginals and Blacks who are excluded and socially dis-identified (Hodges, 1998, p. 272) in our school systems (Anderson, 2006; Freeman, 2005; Institute of Medicine, 2003; Johner, Gingrich, Jeffery, & Maslany, 2008; Kagan & Tippins, 1994; Kunz et al., 2004; Kunz, Millan, & Schetagne, 2000; McMurtry & Curling, 2008). I have also attempted to further critique the issue of social identity in relation to the SMP in the discussion of the results in chapter 5.

The powerful and important role of identity in the development of self-confidence is underscored by the testimony of the iconic Barack Obama, first Black president of the United States in his search for identity as an African-American, states that he stands on the shoulders of the civil rights giants who make possible his own story (Obama, 2004). Similarly, our students from minoritized backgrounds need to be associated with contemporary mentors and role models within a nurturing and non-threatening environment that can support them in making their own stories come true.

It can be argued that multicultural science education is an evidence-based indication for addressing the relatively poor performance of Aboriginal and other minoritized groups of students (Ahmed, 2003; Banister & Maher, 1998; Beatty, Cahan, &
Grant, 2006; Cole, 2001; Ginsberg & Wlodkowski, 2009; Hodson, 1999b, 2008; Wheeler, 2005). Multicultural science education is not only about the instructional curriculum where teacher knowledge, learning/development, and practice play significant roles (Howard, 2006; Pedretti et al., 2003; Wallace & Loughran, 2003). Multicultural science education is also about “dismantling borders”, critiquing/problematizing teacher agency, power relations, decisions about whose knowledge is valid, whose science is acceptable, who gets opportunity to speak, what to speak, when to speak, and how to speak (Clay, 1996; Gitari, 2005, 2008; Hines, 2003; Hodson, 1993a, 1999a; Koballa & Tippins, 2004; Krugly-Smolska, 1999; Mahoney, 2002; Tippins & Nichols, 2001).

**Border Crossing**

With respect to dismantling borders, Delgado-Gaitan (1997), notes that, “Borderland suggests a space where multiple consciousnesses, and multiple possibilities exist—where a border is dissolved. Rigid walls fall and make room for borderlands to configure” (p. 37). The construction of such borderlands is not a singular construction by the educator, but rather a joint effort with student and teacher working collaboratively, a process that requires flexibility, stretching of the psyche, and tolerance of ambiguity to understand our own identities and those of others (Aikenhead, 2006; Delgado-Gaitan, 1997; Ginsberg & Wlodkowski, 2009; Noguera, 2008; Wlodkowski & Ginsberg, 2003).

Hodson’s (1999b) perspective on border crossing [term originally coined by Giroux (2005)] is based on the work of Phelan, Davidson, and Cao (1991) posits that for school-age children, the major social groupings of the family, the peer group, and the school create distinctive “social worlds” that may not have common cultural knowledge resulting in difficulties navigating the borders. Phelan and colleagues (1991) suggest four
types of transition into the culture of school that results from points of similarity and difference between the three social worlds mentioned above:

(a) Congruent worlds facilitate smooth transitions,
(b) different worlds require transitions to be managed,
(c) diverse worlds lead to hazardous transitions, and
(d) highly discordant worlds result in transitions being resisted or insurmountable.

For a more detailed treatment of social groupings and types of transition into the culture of school, the reader is referred to the original work of Phelan and colleagues (1991; 1998) as well as Hodson’s (1999b) article.

The foregoing perspective on border crossing is particularly relevant to minoritized groups such as Aboriginals and Blacks who face very challenging socioeconomic issues (Galabuzi, 2004; McMurtry & Curling, 2008). In light of the present study investigating access to science learning opportunities and career acquisition, it is important to note Hodson’s (1999b) suggestion that the transition mentioned above “is crucial to students’ prospects of using the education system to further their life chances and career prospects” (p. 781).

Multicultural education takes into consideration that “diversity is not an end in itself or a pleasant dispensable accessory. It is the substance from which much human learning, understanding, and wisdom derive … as well as the tolerance and mutual respect so essential to the maintenance of our civil society” (Rudenstine, 2001, p. 26). Even though multicultural science education as we currently know it is in its infancy when compared to the mainstream approach to science pedagogy (Hines, 2003; Krugly-Smolska, 1999), it nonetheless, presents a very timely approach and opportunity for a
critical understanding of school-based science in the 21st Century and beyond (Hodson, 2008; Roth, 2007; Roth & Lee, 2004; Tippins & Nichols, 2001). John Clay (1996) critiques the dominant Eurocentric models of scientific literacy that have been adopted for school science courses internationally. Clay (1996) argues that:

The dominant view of science in the West, and therefore of school science is erroneous in claiming it to be objective, culture-free and value-free; and that it thereby disenfranchises learners who are disaffected by the social and ethical implications of many scientific applications. (p. 184)

As pointed out earlier, science and technology are important and powerful forms of knowledge that will strengthen economic competitiveness and increase employment opportunities (OECD Directorate for Science Technology and Industry, 2004). Denying or preventing access to scientific and technological literacy to anyone is disempowering and socially unjust. Clay argues for “more inclusive forms of scientific literacy which accept that there cannot be a single, universal, ahistorical, and acultural science” (Clay, 1996).

Motivation, Confidence, and Self-Efficacy

Whereas Canada has advanced to some extent with respect to social justice, which is also evidenced by the outstanding performance of its immigrant students on PISA (Levin, 2007), the significant gaps in performance among various ethnic and language groups calls for a critical investigation of a pedagogy that is not only efficient but one that is also inspirational and engaging in order to meet the needs of these students who are at-risk and are on the fringes of science learning (Aboriginal Education Office & Ontario Ministry of Education, 2007b; Aikenhead, 2006; Cummins, 2008; Hodson, 2008; Levin, 2007; Noguera, 2008; Roth & Lee, 2002). The question is how we bridge the gap
between effective instrumental pedagogy and engaging personal pedagogies in order for students to perform at their best and eventually acquire satisfying careers in science.

There is much more to pedagogy than the enforcement of legislation, and the implementation of techniques, strategies, and skills (Mac Iver & Farley, 2005). We can require students to attend school (as in the “Ontario Learning to Eighteen Legislation”), but learning requires purposeful and conscious effort, which cannot be legislated (National Academy of Sciences, 2004). It could be argued that there is a person who comes to school who is very complexly ‘packaged’ with requisite social and cultural assets that need to be authentically incorporated into the learning/cognitive process in order to build motivation, confidence, and self-efficacy that are required for academic achievement (Ageyev, 2003; Alfred, 2003; Beard & Brown, 2008; Bloom, 1956; D'Ooley & James, 1998a; Dalcourt, 2002; Duffy, 2005; Duschl et al., 2007; Hayes, 2001; Koballa & Tippins, 2004; Lee, 2005a; Levine, 1996; Lindsey, Roberts, & CampbellJones, 2005; Medway, 2003; Mortimer & Scott, 2003; Rudenstine, 2001; Taylor, Erwin, Ghose, & Perry-Thornton, 2001; Wenger et al., 2002; Witz & Lee, 2009; Wlodkowski & Ginsberg, 2003). Referring to the work of Kress and colleagues (2001), Medway (2003) emphasizes that multimodal teaching and learning approach take into consideration that:

Students bring to school in their heads a large resource of code knowledge together with networks of associations that make the elements of their familiar world—its objects, behaviour, situations and so on—meaningful, enabling young people to communicate outside school, buy a drink, …

The science teacher then has the job of inducting the students into the specialised scientific codes and meaning-complexes through which the entities, apparatus, procedures and communications of science will become charged with the same meanings that they hold for scientists. (p.154)
Motivation is essential to learning at all ages, but it is particularly important during adolescence as youth approach the threshold of adulthood. “Younger children who become mentally and emotionally disengaged generally are compliant to attend school, or they do not have the means to avoid it. But adolescents who are bored, distracted, emotionally troubled, or do not see the value of school have the means to drop out of school altogether” (Committee on Increasing High School Students' Engagement and Motivation to Learn et al., 2004, p. 13). This drop-out phenomenon and its consequential social impact among Blacks and Aboriginals has been well-documented elsewhere (Aboriginal Education Office & Ontario Ministry of Education, 2007b; Dei & Holmes, 1995; Dei et al., 1997; McMurtry & Curling, 2008).

Whereas the impact of motivation and confidence on academic achievement is more widely understood (Basu & Barton, 2007; Lindsey et al., 2005; National Academy of Sciences, 2004), the relationship between self-efficacy and achievement is less well-known (Committee on Developments in Science of Learning et al., 2000). Zeldin and colleagues (2008) defined self-efficacy as “people’s judgments of their capabilities to produce designated levels of performance” (p. 1036). The authors also noted that:

According to the tenets of social cognitive theory, people are more likely to perform tasks they believe they are capable of accomplishing and less likely to engage in tasks about which they feel less competent. Individuals’ perception of their competencies are powerful motivators that affect the choices they make, the effort and persistence they put forth, and the resilience they show in overcoming obstacles. Self-efficacy beliefs also play a mediational role in that they serve as filters between prior achievements or abilities and subsequent behaviours. (Zeldin, Britner, & Pajares, 2008, pp. 1036-1037)

Anyon (2005a) also points out that feelings of efficacy, righteous anger, and strength lead one to activism, whereas fear, despair, and negative valuations can be immobilizing and
lead to social and political passivism. The above notion speaks volume about the current academic status of some groups of racialized and low socio-economic students, especially with respect to achievement in science (McMurtry & Curling, 2008). There are many Aboriginal and Black students who believe they are no good at doing science and consequently stay clear of the subject and viable career options in science (Canadian Council on Learning, 2007). Aikenhead (2006) posits that a potential for:

Getting Aboriginal peoples into science careers lies in a post-colonial hybrid curriculum in which Western science content in the school curriculum is integrated into the local community’s Aboriginal scientific knowledge. This requires a renegotiation of school science involving a move towards a coexistence of two major science cultures, Aboriginal and Western, within which the Western hegemonic status residing in many schools, communities, university science departments, and in society in general is seriously questioned. (p. 223)

In addition to the notion that teachers, the science community, and other stakeholders need to play positive roles in counteracting student’s negative feelings or lack of motivation towards science (Anderson & Kim, 2006; Frenette, 2007; Haynes, Ben Avie, & Ensign, 2003), from an Aboriginal perspective, Aikenhead (Aikenhead, 2006) makes two recommendations: one, that the knowledge of nature learned in school science should be bi-cultural—combine both Aboriginal and Western knowledge systems; two, that professional and resource development should include a network of competent teachers who are already working as culture brokers in Aboriginal communities to develop an array of flexible and culturally responsive science instruction and assessment practices. More teachers need to buy into the notion that science is a human social enterprise and that children, regardless of their racial or socio-economic backgrounds, come to school with powerful resources on which science instruction can build (Duschl et al., 2007; Hodson, 2008, 2009). Rather than being simply providers of information, the
teacher should seek and provide culture-appropriate opportunities for students to incorporate their identities and knowledge into their science learning experience (Brown, Reveles, & Kelly, 2005; Carter, 2008; Giest & Lompscher, 2003; Hodson, 2002; Nathan, 2009; Roth, 2009; Tippins, Nichols, Atwater & Aikenhead, 2002).

When teachers interact with their students they make choices that speak to their various identities and engage the power-identity dialogue (Gutierrez, Rymes, & Larson, 1995). The identity space shared by teacher and student is a dynamic one in which there is a constant process of negotiating power and identity. However, the racialized student is generally at a distinct disadvantage in this dialogue (Cummins, 2008; Harding, 1993; Hirst & Vadeboncoeur, 2006). The way educators identify themselves both personally and political, inside and outside the classroom impacts the bottom-line for students’ academic achievement (Ginsberg & Wlodkowski, 2009; Noguera, 2001; Noguera, 2008; Wlodkowski & Ginsberg, 2003). The language of classroom science for example, is more complex than the language that students use in other curriculum areas and certainly not everyday usage (Hodson, 1999b). This highly directive language can be intimidating, alienating and even mystifying for some students especially those from racialized groups whose cultural background asserts the teacher as an authority beyond questioning or even pedagogic dialogue (Arellano, Barcenal, Bilbao, Castellano, Nichols & Tippins, 2001; Hodson, 1999a). Hodson (1999b) also notes that:

By choosing the language of expression, teachers decide in favor of a particular way of thinking and, therefore, in favor of the interests and values that underpin it. Taken together, the rules about the conduct of lessons, the conventions concerning who can speak and what can be spoken about (including what can be challenged), and the particular form of school talk and science talk, impose a set of conventions and restrictions that can so formidable that many children are prevented from gaining access to science education. (p. 787)
The notion of how diversity is perceived by schools and teachers in particular, whether it is seen as a problem to be resolved or an asset to be developed impact students’ engagement and academic achievement (Braganca Scott, 2004; Delpit, 2002; Harry & Klingner, 2006). It is only when we construct diversity as a valued organic resource that curriculum moves from effective to engaging or inspirational (Aikenhead, 2006; Wlodkowski & Ginsberg, 2003). Across international contexts, schools reproduce and mirror power and status structures in the society (Cummins, 1996; Cummins, 2008). Critical multicultural education takes into account that there are power and political dynamics involved in pedagogy (Hodson, 1999a; Rodriquez, 1999). Educators have a responsibility to critique their individual and collective identities; to nurture relevant attitudes, values, and beliefs and; develop strategies and skills to challenge the established societal norms of power and status relations (Cummins, 2001, 2008; Hodson, 2008).

Unlike students, teachers have power to make cognitive, personal, and political choices to remove barriers, set priorities, to open up non-threatening pedagogical activity spaces in their classroom, inspire pride, to make decisions beyond the instrumental curriculum so that students who are normally in the margins—the “others” can be empowered to become engaged participants in their classroom (Levin, 2009; Roth, 2001). Instead of a stifling “monologic space”, Gutierrez, Rymes and, Larson (1995) encourage the construction of a new dialogic “sociocultural terrain, which create space for shifts in what counts as knowledge and knowledge representation” (p. 445).

Teachers have the power and the choice to fulfill their prophecies, especially those regarding achievement. Teachers’ expectations significantly impact the academic
achievement of their students (Brophy, 1983; Brophy, 1986; Lee & Brophy, 1996). Irvine (1990) notes that Black teachers, as a group, had higher expectations for Black students than did their White counterparts. Irvine (2003) also reports that teachers or colour “help Black students to navigate school cultures, which are often contradictory and antithetical to their own” (p. 56). In order to motivate students to learn, educators must understand the significant power of their own impact as well as how students’ diverse backgrounds influence their learning styles and attitudes in the classroom (Ginsberg & Wlodkowski, 2009; Jegede & Aikenhead, 1999; Levin, 2007, 2009; Levin, Gaskell, & Pollock, 2007; Roth, 2009; Tobin, Tippins & Gallard, 1994). Like Hodson (1993b), in the poetic experiential words of the educator and non-governmental organization worker Karl Wilkens (2009), the only American who decided to stay in Rwanda during the 1994 genocide:

To enter "The Others" world?

Every encounter is an opportunity

Every opportunity demands a decision! (p. 1)

Hodson (1993b), advocates for a science teaching framework that take into consideration students—“their world”, teachers—“our world” and the phenomenon—‘the world’.

Along these lines, Klassen (2006), recently identified five distinct contexts that are important in engaging learners—the theoretical, practical, social, historical, and affective. Based on these five contexts, Klassen constructs a model for teaching and learning—the *Story-Driven Contextual Approach* (SDCA), in which the story assumes a major role in engaging the learner affectively. Like Klassen’s work, the goal of this study is to uncover
enabling factors within the context of mentoring and to construct a generic framework for engaging minoritized students in science career trajectories.

With respect to the power of the personal curriculum, Levin (2009) states that study after study confirm that “the single biggest factor in whether students try to give up, leave or stay, is their sense that somebody in the school knows who they are and cares about what happens to them” (p. 384). When students cannot express their innate intelligences authentically in science or any other content areas for that matter, they become frustrated and will eventually give up and drop out of their academic journey if their method of expression is not validated (Cummins, 2008). Pedretti and Little (2008) advocates for a transformational and holistic approach in science education in which “the student is viewed in terms of his or her cognitive, aesthetic, moral, physical, and spiritual needs” (p. 51). This transformational and holistic approach to science education is congruent with the concept of mentoring, which “starts with the premise that a successful mentor guides students in a variety of ways: by helping them get the most from their educational experience, by introducing them to and making them comfortable with a specific disciplinary culture” (National Academy of Sciences, National Academy of Engineering, & Institute of Medicine, 1997, p. 15).

Generally, mentors belong to a community of practice where professional identity (e.g., engineer, physician, scientist) is central to the culture. A community of practice is a group “of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (Wenger et al., 2002, p. 4). It should be noted however, that communities of practice is not a modern concept:
They were our first knowledge-based social structures, back when we lived in caves and gathered around the fire to discuss strategies for cornering prey, the shapes of arrowheads, or which roots were edible ... but communities of practice have continued to proliferate to this day in every aspect of human life. (Wenger et al., 2002, p. 5).

Even though teachers getting together on an ongoing basis to sharpen their skills and improve their professional practice constitute a community of practice in a number of ways, it does not normally involve our students learning skills and acquiring knowledge in an organic way in the same time and space. Unlike school settings, where skills and knowledge are generally inorganically abstracted from their actual uses in the world, mentoring at its best organically incorporates the advantage of contextual expert performance, tacit knowledge, as well as motivational and emotional impulses (Barab & Hay, 2001; Collins, Brown, & Duguid, 1989). Clay (1996) warns that:

A scientifically literate citizen for the twenty-first century will require new sets of skills that are transferable and not located within any one school subject. A multidisciplinary approach to knowledge construction would provide a starting point. … In an open society where we are all considered to be learners, we will need to acquire the complex skills necessary to perceive ways in which knowledge is constructed and ordered. We will then be able to analyze whether this knowledge contributes toward the legitimation of inequalities and oppression. (pp. 191-192)

One of the most exciting worldwide scientific initiatives that epitomize this community of practice is the International Barcode of Life (iBOL) Project (2010). In an effort to manage and monitor the world’s complex biodiversity system, the iBOL Project—an alliance of organizations, scientists, and other experienced researchers from 25 nations including Canada—are working together with students at all levels within a global community of practice to find real-world solutions to real-world problems (BIO, 2010; iBOL Project, 2010).
The question is whether society is fully prepared to orient schooling more towards a sociocultural mentoring direction as demonstrated by the iBOL Project wherever and whenever possible. Despite significant “new and improved” programs and policies, the individual role definitions of educators and the institutional role definitions of schools have remained largely unchanged. From a critical research theory perspective, these role definitions are important in order to maintain large bureaucracies and the status quo of dominant/dominated power relationships in the educational system (Anyon, 2005a, 2009). In an attempt to address the inequalities of contemporary society, critical research theory explores the world, science included, for the purpose of exposing injustice, developing practical ways to change it, and identifying sites and strategies to effect transformation (Anyon, 2009; Kincheloe, 1998). We have seen that educational reforms that threaten this structure have been fiercely resisted (Anyon, 1997, 2009). Consequently, costly reforms generally leave disabling structures essentially intact (Cummins, 2001; Kahle, 2007). Hudson (1999b) notes:

Traditional top-down, managerial-hierarchical approaches to curriculum development fail to identify and engage teachers as the key agents of change. Moreover, they ignore the uniqueness of educational settings. The teacher is regarded as a technician, whose job is to implement the theories (and underlying values) of others. No account is taken of teachers’ own experiences, personal theories, and values. No account is taken of the particular constraints of particular learning/teaching environments. In other words, educational change is seen as independent of the social context in which it is formulated and the social context in which it is to be implemented. (p. 790)

With respect to minoritized students, the focus needs to be on pedagogical “doables” that liberate students from instructional dependence that objectify these students as inferiors and failures (Dei, 1999; McMurtry & Curling, 2008). This inferiority and failure are often used as justification for excluding the group from activities and
Careers such as medicine that entail significant societal rewards and status (Cummins, 2001). Educators, students, and their communities can then see schools as agents of transformation that empower minoritized students rather than reflectors of society that disable these students. In order for school reform to be effective for all students, especially racialized subgroups, schools and schooling must be seen in a larger and more comprehensive sociocultural context, where social, economic, and political priorities are centre-stage (Anyon, 1995a, 2005a, 2005b, 2009; Fullan, 2010). Unfortunately however, in a number of school reform efforts, little or no attention is paid to the social, cultural, and racial backgrounds of the students who are directly impacted (Anyon, 1997; Hargreaves, 1997).

II. Sociocultural Learning Theory and Mentoring

“I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.” Maya Angelou

As a Black in-service science teacher in Canada, who grew up in the Caribbean and experienced elementary, secondary, and post-secondary education in Jamaica, I often wondered what science and scientist mean to secondary school students and particularly minoritized students in Canada. As I recall my years in secondary school and even at the university level back in Jamaica, I had little or no idea what science meant as a social enterprise. In fact, I entered high school late; I was 13 at the time and so was not able to be part of the prestigious streams who had already covered two years of general science before branching out into chemistry, biology, and physics.

In my time growing up in Jamaica, the system was based on the elitist English traditions of education whereby you had to pass an 11-plus entrance examination before
matriculating into high school. For some reason still unknown to me, I was passed over and did not sit this exam. Two or 3 years later, the opportunity arose again, and I was allowed to sit another less prestigious entrance exam to enter high school as a late comer. I am the product of an inequitable system that perpetuated power, privilege, and social control. Even though I did not experience exclusion as a result of race, I must admit that I did feel the oppression of socio-economic marginalization, which of course, did not do much for my self-esteem, confidence and ultimately my less than stellar secondary school academic achievement.

In spite of the forgoing drawback however, I did have some very supportive teachers and a caring and loving family network that buoyed me through the stormy seasons. The importance of the home and school working together cannot be overstated. I can certainly relate to the experience and words of Brent Butt, who, though not an outstanding student as revealed in the article, rose above hardship to become creator and star of Corner Gas, Canada’s most successful sitcom: “Home for me was a very comforting place. I fell into the right family and the right school” (Harris, 2009, p. 33).

But how does my own personal life experience impact my approach to science pedagogy? I know personally, that science is real and experiential. I also know that students’ accessibility to science and science careers is greatly improved if they are prepared to apply themselves and work hard. That is my story and I can passionately relate it to my students, especially those who face marginalization. Each semester, when I start with a new class of students at the secondary level, I address scientific inquiry from a very practical and experiential perspective, sharing with students my own research in psychopharmacology and my many years working in clinical chemistry in hospital and
other medical laboratories (Clarke & Wray, 1982; Wray et al., 1982). During these heart-to-heart experiential sharing sessions, based on the quietness in the room, the expressions on their faces, and the questions asked, there is no doubt in my mind that students are engaged and fascinated by my stories. This approach concurs with Witz and Lee (2009):

> Teaching science should aim for ‘understanding, by direct personal experience and problem solving, the power and scope of science’ and of the ‘light [which it] can cast’ on the phenomena which it addresses. (p. 425)

But this was only hearing the stories. What if we take this teaching and learning to another level, where students can be part of a real-world science lab, sharing stories in a comfortable setting and being part of a community of practitioners working at the ‘elbows’ of real career scientists who are actually doing science (Barab & Hay, 2001; Murphy & Hall, 2008; Roth & Lee, 2004; Venville, Sheffield, Rennie, & Wallace, 2008). Roth and colleagues (2009) write about the dialogic nature of science education as process and product. In order to address the currently widespread irrelevance of science in the everyday lives of people, these authors “want science education to be for people rather than strictly about how knowledge gets into their heads” (Roth, 2009).

There is a disturbing paradox that minoritized children seem well adjusted and entirely competent in their home environments but often mal-adjusted, exhibit inappropriate behaviour, and are slow to learn academic skills and content at school. Some educators and researchers argue that the academic performance of these children could be greatly improved if their abilities shown in the home could somehow be transferred to the classroom. The abovementioned research finding is based on work with Hawaiian children at the Kamehameha Early Education Program in urban and Rural Oahu in the 1970s. The authors believe that the paradox can be resolved by encouraging
cognitive strategies already in children's repertoire (Cole, Engestrom, & Vasquez, 1997; Gallimore & Au, 1997). This notion is supported by the work of researchers such as Aikenhead (Aikenhead, 1998a, 1998b, 1998c; Cobem & Aikenhead, 1998). The question then is whether the science discourse development that is generally provided in the classroom is meeting the needs of all students, especially minoritized subgroups (Cazden, 1997; Enyedy, 2003; Hodson, 2008; Lee, 2003).

**Culture and Learning**

In light of the above discussion surrounding the educational achievement of minoritized students, we must ask what precisely is involved in learning in general and learning science in particular; based on the literature, what learning paradigm would be most relevant to address the current conditions. Anthropologists like Jean Lave and Wenger (Lave & Wenger, 1991) and others have made a key contribution to the debate about learning in insisting that knowledge is never simply transmitted, but rather is continually regenerated through engagement with situations and contexts, and is as much about becoming a participant in a community of practitioners as about picking up particular skills. This idea has been taken up within education by sociocultural activity theorists such as Yrjo Engestrom (Engestrom, 2005; Tuomi-Greohn & Engestrom, 2003), and has influenced a whole generation of educational research. In a compelling collection of studies, Goncu (1999) and other contributors take the stance that culture is more than an independent variable. Rather, their studies characterize culture as “a system of meanings that provides the context for children's development as one of its constituents rather than as a variable that exerts an influence on children's development” (p. 10). It is understandable then, why children from mainstream culture have little or no problem
doing well in school while children from minoritized cultures face significant challenges (Delpit, 1995; Delpit & Dowdy, 2002; Howard, 2006; Irvine, 1990).

According to the OECD (OECD, 2005c), three broad conclusions emerge from research on student learning:

1. The largest source of variation in student learning is attributable to differences in what students bring to schools, such as their abilities and attitudes and their family and community background.

2. Teacher quality is the single most important school variable influencing student achievement.

3. It is difficult to predict who is going to be a good teacher just by considering measurable characteristics such as qualifications and teaching experience. Other important factors are the ability to convey ideas in clear and convincing ways, to be enthusiastic and creative, and to work effectively with colleagues and parents.

These conclusions are also supported by eminent scholars of Black education in the area of cognition and culture. For example, Lee (2005a) in her review of the science of learning and interventions by African Americans states, “Ability is not static and finite. Thus, as human beings we literally build our brains through our engagement with experience” (p. 75). Lee also noted that in some contexts, “the longer African American students stay in school, the less they learn as measured by standardized assessments” (p. 75), which suggests apathy and disengagement among Black students (Dei et al., 1997).

With respect to the first OECD conclusion regarding students’ backgrounds, Lee and Luykx (2005) contended that from a United States perspective, school science instruction
fails to provide equitable learning opportunities to non-mainstream students in two ways: (a) by ignoring the ways in which their linguistic and cultural knowledge articulates with science disciplines, and (b) by not offering educational resources and funding at levels comparable to those available for mainstream students (Lee, 1999; Lynch, 2000; Lynch, 2001). The Canadian perspective shares significant similarities with the U.S. realities, certainly in the area of linguistic and cultural knowledge (Britton et al., 1999; Cummins, 2008; Ontario Royal Commission on Learning, 1994; Ontario Royal Commission on Learning, 1995; Shujah, 1999; Tobin & Roth, 2006; Trumbull et al., 2001).

Cultural congruence and culturally relevant pedagogy has been presented as necessary conditions for promoting students' classroom participation and engagement (Gibson, 2005; Ladson-Billings & Gillborn, 2004; Lee & Fradd, 2002; Ogbu, 1987, 1990b, 1990c). Cultural congruence occurs when teachers engage in culturally appropriate communication and interactional patterns and use cultural artifacts, cases, examples, analogies, and community resources familiar to students in classroom instruction (Koballa & Tippins, 2004; Ladson-Billings & Gillborn, 2004). The literature on cultural congruence and culturally relevant pedagogy has focused primarily on the interactional and discursive aspects of teaching (Brown, 2007; Villegas, 2002) or on instruction in areas such as reading and writing (Delpit & Dowdy, 2002).

Aikenhead (2006) suggests acknowledging cultural border-crossing by consciously aligning science learning with critical areas such as values, language, conceptualizations, assumptions about nature and, ways of knowing. For example, in the case of Aboriginal students relating to Western science: values (e.g., from harmony with nature to power and domination over nature), language (e.g., from Cree or Ojibwe to
English), conceptualizations, (e.g., from ‘Who is that animal?’ to ‘How is it classified), assumptions about nature (e.g., from the observer being personally related to what is observed to the observer being objectively removed), ways of knowing (e.g., from holism to reductionism) (Aikenhead, 2006; Cajete, 2000). The teacher plays a very critical role in this process. “an effective culture-brokering teacher clearly identifies the border to be crossed, guides students back and forth across that border, and helps them negotiate cultural conflicts that may arise” (Aikenhead, 2006, p. 235).

**Mentoring and Learning**

I'm looking for a man with sweat on his brow and callused areas on his palms; I'm looking for a man who cares to say you messed up, now get up, look up, and continue pressing forward, I'm looking for a man to say son you're at a fork in the road, recognize it, respect it, but make a decision and move left or right; I'm looking for a man who'll stand at the door of a relationship and say come to school son, I've got a wealth of knowledge to share; I'm looking for a man who simply wants to give a little of himself to make a world of difference in me. (Dalcourt, 2002, p. 1).

**History, Development, and Scope of Mentoring**

Mentoring has a very long history dating back to ancient Greece, other civilizations, and cultures (Barondess, 1994; Klinck et al., 2005; Rieu, 1946). This construct owes its name and root metaphor to the myth of the Odyssey that relates the preparation of Odysseus for the siege of Troy around 1200 B.C. Before leaving for the war, Odysseus appointed his trusted friend Mentor to guide his son Telemachus during his absence (Rieu, 1946). Subsequent, seminal work such as The Seasons of a Man’s Life...
(Levinson, Darrow, Klein, Levinson, & McKee, 1978) and Mentoring at Work: Developmental Relationships in Organizational Life (Kram, 1985) aroused contemporary interest in mentoring research and initiated the modern study of developmental relationships, which impact practically all aspects of human enterprise (Allen & Eby, 2007b; Bearman, Blake-Beard, Hunt, & Crosby, 2007; DuBois & Karcher, 2005; Murray, 2001).

In both the professional and popular literature, mentoring has earned the reputation of panacea for all developmental relationship ills, professional development, and career advancement (Colwill, 1990; Jowers & Herr, 1990). There is an intuitive belief that not only does everyone who makes it have a mentor, but everyone needs a mentor, from marginalized elementary school children to professors and Fortune 500 CEOs (Allen & Eby, 2007b; Mertz, 2004). The prevailing notion is that practically all supportive relationships are considered mentoring (Donovan, 1990).

Mentoring can be mandatory or voluntary, take place in groups or in pairs, function between peers or hierarchically, occur within a single organization or spread across organizations, include multiple mentors, and even occur at a distance (D'Abate & Eddy, 2008; DuBois & Karcher, 2005). In general, the phenomenon creates opportunity for increased support, on-going conversation and collaborative problem-solving capacity (Bullough, Jr. et al., 2003). However, it is possible that the concept is over-stated and over-rated. Mentoring is used both acontextually and inconsistently to describe a wide range of relationships resulting in a conundrum in which researchers themselves are unable to agree on who or what a mentor is (Allen & Eby, 2007b). In this review, a developmental definition of a mentor is adopted:
Mentoring involves the secure attachment of a protégé to an individual who eases transitions and prompts adaptation. ...mentoring has emerged as the prime form of career assistance for the information age, one rooted in a helping relationship that provides visiting, guiding, and counselling. (Savickas, 2007, pp. xviii-xix)

A single universal definition of mentoring is futile primarily because mentoring is a social relationship; “it always occurs in a social milieu and among specific people with different individual attributes” (Bearman et al., 2007, p. 376). Some researchers have advocated the breakdown of mentoring into two categories: instrumental—includes coaching, sponsorship, exposure, and opportunities for challenging assignments, and psychosocial—includes role modeling, empathizing, and counselling (Tenenbaum, Crosby, & Gliner, 2001). Mentors are traditionally seen as individuals with wisdom, advanced experience, knowledge, skills, and influence who provide support to and promote the career development of their protégés at the student or professional level through an interactive relationship (Allen & Eby, 2007a; D'Abate & Eddy, 2008; Fawcett, 2002; Rhodes, 2002a; Wilkes, 2006). Mentoring relationships generally include psychosocial support focusing on the enhancement of the protégé's sense of self and identity, competence, and effectiveness as a professional, and includes friendship, acceptance and confirmation, counselling, and role modelling (Allen, Finkelstein, & Poteet, 2009; Awaya et al., 2003; Hargreaves & Fullan, 2000; Kuo, 2000).

Mentoring is distinct from other types of similar relationships (e.g., advising, teaching, role-modelling, supervising, coaching) “in terms of the context in which the relationship occurs, primary scope of influence, degree of mutuality, relationship initiation (formal-informal), relational closeness, power difference between individuals, and whether or not interaction is required for the relationship” (Eby, Rhodes, & Allen,
Mentoring and role-modeling share a number of similarities such as context (academic, community, and workplace); primary scope of influence (academic, social, career, personal); relationship initiation (informal or formal); and power difference (large to small) but are different with respect to degree of mutuality (low to high for mentoring but none for role-modeling); relationship closeness (low to high for mentoring but none for role-modeling); and interaction (required for mentoring but not for role-modelling) (see Figure 2.1).

<table>
<thead>
<tr>
<th>Type of relationship</th>
<th>Context</th>
<th>Primary scope of influence</th>
<th>Degree of mutuality</th>
<th>Relationship initiation</th>
<th>Relational closeness</th>
<th>Interaction required</th>
<th>Power difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor-protégé</td>
<td>Academic, community, workplace</td>
<td>Academic, social, career, personal</td>
<td>Low-high</td>
<td>Informal or formal</td>
<td>Low-high</td>
<td>Yes</td>
<td>Large-small</td>
</tr>
<tr>
<td>Role model–observer</td>
<td>Academic, community, workplace</td>
<td>Academic, social, career, personal</td>
<td>None</td>
<td>Informal or formal</td>
<td>None</td>
<td>No</td>
<td>Large-small</td>
</tr>
<tr>
<td>Teacher–student</td>
<td>Academic</td>
<td>Academic, career</td>
<td>Low–moderate</td>
<td>Formal</td>
<td>Low–moderate</td>
<td>Yes</td>
<td>Moderate–small</td>
</tr>
<tr>
<td>Advisor–advisee</td>
<td>Academic</td>
<td>Academic, career</td>
<td>Low–moderate</td>
<td>Formal</td>
<td>Low–moderate</td>
<td>Yes</td>
<td>Large</td>
</tr>
<tr>
<td>Supervisor–subordinate</td>
<td>Workplace</td>
<td>Career</td>
<td>Low–moderate</td>
<td>Formal</td>
<td>Low–moderate</td>
<td>Yes</td>
<td>Large–moderate</td>
</tr>
<tr>
<td>Coach–client</td>
<td>Workplace</td>
<td>Career, personal</td>
<td>Low</td>
<td>Formal</td>
<td>Low–moderate</td>
<td>Yes</td>
<td>Large</td>
</tr>
</tbody>
</table>

*Note: Shading indicates where mentor-protégé relationships are similar to other types of relationships.*

**Figure 2.1. Comparison of mentoring to similar types of interpersonal relationships.**

Source: (Eby et al., 2007, p. 11)

In summary:

While mentor-protégé, student-teacher, advisor-advisee, supervisor-subordinate, and coach-client relationships all require interactions between relational partners, mentoring is unique. Mentor-protégé relationships can exist in a wide range of contexts, have a broad scope of potential influence, display variability in mutuality and relational closeness, can be
formal or informal, and can involve small to large power differences between individuals. (Eby et al., 2007, p. 12)

Over the years there has been a large body of scholarship on mentoring, reviews spanning a gamut of areas from the context of career development and advancement to mentoring effectiveness (DuBois, Holloway, Valentine, & Cooper, 2002; Herrera et al., 2009). Extensive reviews of these areas are covered elsewhere (Allen & Eby, 2007b; Barondess, 1994; Colwill, 1990; Donovan, 1990; Ehrich, Hansford, & Tennent, 2004; Ehrich, Tennent, & Hansford, 2002; Giovinco, Blanks, & Visscher, 1985; Jowers & Herr, 1990; Murray, 2001; Rhodes, 2002b; Rieu, 1946; Sullivan, 2004; Zachary, 2005).

Mentoring programs serve a variety of purposes; three main directions are identified in the literature: youth mentoring focusing on means for promoting the positive development of youngsters who might be at risk for behavioural, academic, and social problems; student-faculty mentoring; and workplace mentoring (Allen & Eby, 2007b; DuBois & Karcher, 2005). Even though the domain of this research is youth mentoring—a sustained relationship between a caring supportive adult and youth—the research questions to be answered will be better understood from an integrated cross-disciplinary perspective of the three branches of mentoring stated above (Allen & Eby, 2007b).

Mentoring plays a powerful role in fulfilling the human need to belong and serves as an effective tool for personal growth and development (Allen & Eby, 2007a; Allen & Eby, 2007b). Therefore, individual mentoring programs use a number of unifying criteria such as race/ethnicity, educational background, and availability for deciding on a match. Some programs are particularly interested in matching their mentees with adults who share similar characteristics such as gender, ethnicity, and race (DuBois & Karcher, 2005; Jucovy, 2002; Rhodes, Reddy, Grossman, & Lee, 2002). A number of practitioners and
researchers believe that youth are best matched with mentors of the same race (Ogbu, 1990a). However, based on U.S. data and anecdotal reports in Canada it can be challenging to achieve this for every minority youth. Across mentoring programs in the United States, 15 to 20% of adult volunteers are members of a racial minority, as contrasted to approximately 50% of the children and youth who have, or have applied for, a mentor (Jucovy, 2002b; Rhodes et al., 2002). For programs committed to same-race matches, the result is that minority youth may spend a long time on a waiting list until a mentor becomes available. The need for expanding the pool of potential mentors from minoritized backgrounds is clearly indicated.

There seems to be no right or wrong answers to the same-race cross-race mentor matching, however, the debate is still very active. Even though race, ethnicity, and culture could significantly impact the mentoring relationship, not many studies have addressed these issues with respect to mentor matching. In an in-depth review of the relevant literature, Sanchez (2005) presents four theories that could be helpful in our understanding of race, ethnicity, and culture in the development of effective mentoring relationships. These theories include:

1. The similarity-attraction paradigm (Byrne, 1971), which states that mentors and mentees of similar racial, ethnic, or cultural backgrounds who likely have more in common, would experience more successful relationships than those of different backgrounds.

2. Ogbu’s (1990a) framework argues that racial minority youth are best matched with mentors of the same race who have experience in combating racism in the United States.
3. Contrasting cultural values of individualism and collectivism proposed by Vandello and Cohen (Vandello & Cohen, 1999), cultural values influence mentees’ receptivity—having a mentor outside of a mentee’s social network make it difficult to develop the trust that is necessary for effective mentoring relationships.

4. Stereotype threat theory refers to “the threat of being viewed through the lens of a negative stereotype, or the fear of doing something that would inadvertently confirm that stereotype—something external, the situational threat of being negatively stereotyped” (Steele, 1999, p. 45). The construct is a psychological state that one experiences when some property of the environment reminds the individual of stereotypes held by society. In other words, others’ judgments of one’s action will cause a person to be negatively stereotyped (Steele, 1997). For example, African American college students tend not to perform as well as their White peers on standardized exams only when cues, such as the words ‘exam’ or ‘comparison’ are provided. However, when those cues were not presented, both groups performed equally on the same exam. Therefore, when minoritized students take such tests, the threat that they will perform poorly on the exam is presumed to be triggered, which as a result, negatively affects their performance (Steele, 1999). This theory supports the need for environments that will nurture minoritized students to become all that they can be rather than those that perpetuate negative stereotypes and exact damages to their psyches due to underutilization of their potentials (Freeman, 2005).
For a more detailed treatment of these theories see Sanchez and Colon (2005).

Rhodes and colleagues (2002) conducted an extensive study involving 476 Black youth in the United States. The study revealed that minority adolescents were less likely to report initiating alcohol when placed in cross-race matches. In addition, minority boys in same-race matches reported smaller decrements in scholastic competence and self-worth than did minority boys in cross-race matches. Minority girls in same-race matches reported smaller decrements in school value and self-worth than did minority girls in cross-race matches (Rhodes et al., 2002). In a parallel gender-paired study involving 518 mentored clinical psychology doctorates, both male and female respondents who had cross-gender mentors were significantly more likely to report attraction to the mentor, negative experiences related to the mentor's seductiveness, and difficulty terminating the mentorship than respondents with same-gender mentors (Harden, Clark, Johnson, & Larson, 2009). Even though gender-paired mentoring at the adult-adult level is different from race-paired mentoring at the adult-youth level, these results suggest re-evaluating our ideological assumptions about mentorship paring with respect to both positive and negative relationship outcomes (Harden et al., 2009).

The arguments for same-race matching are deeply embedded in minority groups’ historical experience in the United States, cultural legacies, and values regarding self-protection (Leigh, 1989; Neal, 2001), as well as the notion that racial problems transcend geographical and class issues (Ogbu, 1990b). Proponents of racial matching base their belief, in part, on the assumption that an adult of a different racial and ethnic background cannot teach a youth how to cope in society if he or she cannot understand what it feels like to be a minority in America. Further, it is thought that minority youth internalize the
racial and ethnic attitudes of the larger society; they are thought to be more vulnerable to low self-esteem and to have restricted views of their possibilities. It is therefore important to furnish them with a sense of history, heritage, and continuity (Alvarez, 1994). Based on Ogbu’s (1990a) theory, it is assumed that only a mentor with a similar racial and ethnic background can understand these social and psychological conflicts and offer realistic solutions (Ogbu, 1990a).

Other issues involve levels of trust, sharing, and cooperation (Wang, Tomlinson, & Noe, 2010), which some believe will never be realized unless there is a common bond of race or ethnicity (Jucovy, 2002). A similar concern has been raised by American social workers who question whether European American adults can adequately support the development of African American children especially in acquiring skills necessary for survival in a racist society (DeBerry, Scarr, & Weinberg, 1996). Finally, there is apprehension that providing minority youth with mentors from different cultures will send the wrong message, that appropriate role models are not of their own group, or that there are not enough adults from their own community to serve as positive role models (Ogbu, 1990a).

Whereas supporters of cross-race matching do not deny the existence and potential effects of culture on mentoring relationships, rather they see the issue as one of timing (Rhodes et al., 2002). In light of the shortage of minority mentors mentioned earlier, supporters of cross-race matches subscribe to Byrne’s similarity-attraction paradigm and believe that effective relationships can develop despite racial/ethnic, and class differences and that at least some benefits can be provided with a cross-race match (Rhodes et al., 2002; Sanchez & Colon, 2005). An earlier review by Ferguson (1990)
examined several mentoring programs and found evidence of positive cross-race bonding. He noted that although “several people had strong opinions about the need for matching children and mentors by sex and race . . . sensitivity seems to be the only absolute requirement” (p. 19).

In their qualitative study of mentors, Morrow and Styles (1995) also reported that effective relationships were just as likely to form among cross-race pairs as same-race pairs. Although challenges arose as a result of the cultural differences, they were generally resolved through adequate support and understanding (Morrow & Styles, 1995). In summary, it is evident that mentoring relationships are very complex and transcend racial/ethnic characteristics. Therefore, mentee-mentor matching should take into consideration a combination of factors such as mentor’s sensitivity, trust, and shared interests instead of matching simply by race/ethnicity (Rhodes et al., 2002; Sanchez & Colon, 2005)

In the United States, ongoing efforts in high school reform have included health career-oriented approaches that have sought to improve postsecondary outcomes for minoritized students and students who are disadvantaged. Some particular reform efforts have involved partnerships between high schools and universities, employers, or other community groups designed to help students in the transition to college and/or work after high school. In a review of the literature, Mac Iver and Farley (2005) reported that work-based learning has been shown to help students master generic and specific skills for their future occupations and apply skills learned in the classroom to a real work setting. The authors further reported that despite obstacles and challenges in building school-community partnerships such as school-university mentorship programs, there is
evidence from evaluation studies that well-focused and implemented community involvement can have positive effects on achievement, school related behaviour, attitudes, and risk-taking behaviour (Mac Iver & Farley, 2005).

However, an earlier review by McMullen and colleagues (1992) provided evidence that efforts by colleges and universities to improve access to higher education for minority students, through direct initiatives for students (various activities and services) appear less successful than more systemically focused efforts (involving curricular development and professional development for teachers). In Mac Iver and Farley’s study (2005), more than one half the class of 2001 respondents were attending a 4-year college, up from 36% of the class of 1999 and 45% of the class of 1998 even though the size of the graduation class had decreased. Although the partnership implemented an impressive array of health careers—related activities for students during the 5 year period of the partnership, student academic outcomes at Banbridge High School did not improve as much as partnership members expected. These results echo other findings on career academies and school-to-work partnerships (Farrar & Cipollone, 1988; Kemple & Snipes, 2000) and are not surprising, given the difficulty in dealing with core curricular and instructional issues (Mac Iver & Farley, 2005).

A recent study in the U.S. examined the effects of the U.S. Department of Education’s Student Mentoring Program (SMP) on students’ interpersonal relationships, academic outcomes, and delinquent and risk behaviours (Bernstein, Dun Rappaport, Hunt, & Levin, 2009). The study focused on about 2,600 at-risk fourth through eighth-grade students in 32 SMP sites. Applicants were randomly assigned to a program group that was offered SMP services or to a control group that was not offered the services.
Control-group students were free to receive mentoring services through other programs. The authors collected data on students’ interpersonal relationships and delinquent and risk behaviors through student surveys and collected data on course grades, statewide assessment scores, and disciplinary infractions from school records. Study authors found that the student mentoring program had no statistically significant effect on the academic and behavioral outcomes they examined once they adjusted their statistical tests for the analysis of multiple outcomes (Bernstein et al., 2009):

In general, an effective mentoring relationship is characterized by mutual respect, trust, understanding, and empathy. Good mentors are able to share life experiences and wisdom, as well as technical expertise. They are good listeners, good observers, and good problem-solvers. They make an effort to know, accept, and respect the goals and interests of a student. In the end, they establish an environment in which the student's accomplishment is limited only by the extent of his or her talent. (National Academy of Sciences et al., 1997, p. 2).

A Theoretical Framework for Mentoring and Communities of Practice

Mentoring is a growing phenomenon in practically all aspects of human service and enterprise (Allen & Eby, 2007b; Allen et al., 2009), but does it work by chance, why does it work and what is the theoretical framework that underpins its action? By investigating the learning process in a range of developmental and situated relationships grounded in Vygotskian theory, mentoring researchers can gain insights into the mechanisms that are responsible for successful mentoring (Allen & Eby, 2007b; Kozulin, Gindis, Ageyev, & Miller, 2003). The central focus of Vygotsky’s theory, first advanced in the 1920s, is the understanding of human cognition and learning as social and cultural rather than individual phenomena (Alfred, 2003; Arievitch & Haenen, 2005; Chaiklin, 2001; Dewey, 1938; Gauvin, 2005; Glassman, 2001; Hansman & Wilson, 2002; Kozulin, 1998; Luria & Vygotsky, 1930; Rieber & Carton, 1987; Sannino, Daniels, & Gutierrez,
Some of the most exciting ideas to influence developmental psychology and the learning sciences and consequently classroom and workplace learning, this century are those of Russian psychologist Lev Vygotsky (1896 – 1934) (National Research Council of the National Academies, 2005; Rogoff, 1995, 2003; Rogoff, Paradise, Mejia, Correa-Chavez, & Angelillo, 2003). Current developmental psychology scholarship and practice are replete with the work of Vygotsky as his ideas challenge existing theorists like Piaget (LLoyd & Fernyhough, 1999; Pass, 2004; Vianna & Stetsenko, 2006).

Vygotsky proposed that a child’s development depends on the interaction between the child’s individual maturation and a system of symbolic tools that the child appropriates from his or her sociocultural surroundings (Kozulin, 2003). In other words, human activity take shape and meaning from their specific cultural, social and historical context (Almasi, 2002; Goncu, 1999). “Unlike the individualistic theory of learning, the Vygotskian approach emphasizes the importance of sociocultural forces in shaping the situation of a child’s development and learning and points to the crucial roles played by parents, teachers, peers and the community in defining the types of interaction occurring between children and their environments” (Kozulin et al., 2003, p. 2).

Vygotsky’s theory challenges our vision of students as children defined by their age and IQ compared to learners who are culturally and socially situated (Chaiklin, 2003; Kozulin et al., 2003; Vianna & Stetsenko, 2006). The theory also forces us to contemplate the questions of agency of learning, “cultural funds of knowledge”, and to re-examine and re-construct our ideal of a teacher for example, as a mediator rather than
a source of knowledge (Kozulin, 2003). Vygotsky’s theory introduces its most popular concept used in contemporary educational theory, the zone of proximal development (ZPD), which provides a framework for understanding learning over the lifespan from early childhood learning to adult professional training (see Figure 2.2).

**Figure 2.2. Conceptual framework of Vygotsky’s theory and contemporary educational issues.**

Source: (Kozulin et al., 2003, p. 18).

Learners’ development is inherently situated in their system of social relationships and they "internalize" cultural meanings in the zone of proximal development (ZPD) in their effort to become independently functioning members of society (Goncu, 1999).
Competent members of a community of practice help youngsters to become full practicing members which includes supporting them in deciding what meanings are worth engaging in as well as how to engage those meanings (Lave & Wenger, 1991; Wenger, 1998; Wenger et al., 2002).

Vygotsky originally used ZPD in three different contexts:

(a) For explaining the emerging psychological functions of the child,
(b) in an applied context to explain the difference between the child’s individual and aided performance, and
(c) as a metaphoric “space” where everyday concepts of the child meet “scientific” concepts provided by teachers or other mediators of learning (Kozulin et al., 2003).

In light of Vygotsky’s theory, Bearman and colleagues (2007) considered three developmental learning theory components that could inform us on the causal mechanism involved in mentoring—scaffolding, intent participation, and self-efficacy. Scaffolding was first presented by Wood and colleagues (Wood, Bruner, & Ross, 1976) in their investigation with 3-, 4-, and 5-year-olds who were tutored in the task of constructing a pyramid from complex, interlocking constituent blocks. The construct was used as a metaphor for:

The process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the adult "controlling" those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. (Wood et al., 1976, p. 90)

Adult in the original definition can be substituted for a more generalized “experienced other” who provides the temporary scaffold by which learners can expand their
knowledge and abilities (Wood, 1999). Though scaffolding and mentoring are not equivalent constructs, scaffolding may represent some level of interaction experienced during mentoring activity (Bearman et al., 2007; Dennen, 2004). The original context of scaffolding presents the more experienced other as being in control of the process. However, in mentoring, scaffolding occurs as protégé and mentor develop a shared mental process that over time allows the mentee to integrate the mentor’s cognitive structure into their own (Bearman et al., 2007).

Rogoff (1990) posits that as a result of sharing of vocabulary, conceptual structures, and common practices, mentees begin to see the world in a way that is consistent with the domain in which they are being mentored. The concept of scaffolding along with apprenticeship grew out of Vygotsky's original mediational model, which stipulates that the development of a child's higher mental processes depends on the presence of mediating agents in the child’s interaction with the environment (Kozulin et al., 2003; Wood, 1999). However, Vygotsky himself primarily emphasized symbolic tools—mediators—appropriated by children in the context of particular sociocultural activities, the most important of which he considered to be formal education (Kozulin et al., 2003). Mentoring researchers may further explore the relationship between mentoring and scaffolding by posing questions such as: How much scaffolding support is most effective for successful mentoring? Are there “signals” along the mentoring journey that suggest it is time to take down scaffolding? What types/categories of activities are most likely to benefit from mentoring?

Germane to the study of mentoring and science pedagogy, the science community of practice decides what activities to engage in and what meanings are worthwhile to
adopt as opposed to others. Leont'ev's theory of activity is useful in understanding this process. Leont'ev (Leont'ev, 1978; Leont'ev, 1981) defines activity as a unit of life in which an individual engages to satisfy a need. The appropriation of cultural meaning occurs in the process of satisfying the need (Goncu, 1999), 1999). Leont'ev's theory also informs us that the economic, social, and physical conditions of a culture determine the activities that are valued and available to its participants (Cole et al., 1997; Engestrom, 2005).

Intent participation is the next relevant developmental theory component that provides some illumination on the causal mechanism at play in mentoring (Rogoff, 1995; Rogoff et al., 2003). In industrialized societies, “assembly line” instruction—transmission of information from experts to learners, takes place within specially designed settings (e.g., schools) remote from productive community activities. By comparison, intent participation is learning that takes place at the site of active community practice (Rogoff, 1995). Mentoring is very much akin to intent participation that is often practiced in indigenous communities, where young people are integrated into meaningful community practices, which allows for more opportunity to observe adults engaged in productive activities (Aikenhead, 2006; Cajete, 2000; Gitari, 2000; Klinck et al., 2005; McKinley, 2005; O'Brien et al., 2009; Villegas et al., 2008). Like mentoring, intent participation is socially structured and involves more learning by doing than is present in “assembly line” school environments (Bearman et al., 2007). In my review of the literature, one of the most exciting worldwide scientific initiatives that epitomizes this community of practice/intent participation is the International Barcode of Life (iBOL) Project (2010). In order to protect and understand the diversity of life on a global scale —
will have profound economic and societal impacts—we must be able to know the species and ecosystems with which humans, industry and lifestyle, depend and interact. In an effort to manage and monitor this complex biodiversity system the iBOL Project—an alliance of organizations, scientists, and other experienced researchers from 25 nations including Canada—are working together with students at all levels within a global community of practice to find real-world solutions to real-world problems (BIO, 2010; iBOL Project, 2010).

Both mentoring and intent participation are characterized by distinct stages of maturation in preparation for mastery in the domain in which they are inducted. There is a period of observation where protégés are legitimate peripheral participants (Lave & Wenger, 1991), though part of the community of practice working shoulder to shoulder with their mentors with limited responsibilities while they work to master needed community practices (Maynard & Martini, 2005; Wenger, 1998; Wenger et al., 2002). In light of the above discussion on intent participation, legitimate causal questions could include: Since protégés are expected to take on full responsibilities and mastery of needed community practices sooner than later, are they more intense in their learning during mentoring than in other learning environments such as regular classrooms? Are mentees more engaged in mentoring because they are involved in meaningful community activities? Are mentees more engaged because they are part of a legitimate, valued community of practice?

Self-efficacy is the final developmental theory component mentioned in this review that sheds light on the causal mechanism operating in mentoring (Anderson, Hattie, & Hamilton, 2005; Bearman et al., 2007; Zeldin et al., 2008). Self-efficacy is the
belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1997a, p. 3). This construct is an excellent predictor of actual ability and influences the choices we make, the effort we put forth, and our resilience—how long we persist when we confront obstacles and in the face of failure. Self-efficacy also influences how we feel (Bandura, 1986). Self-efficacy originates from four interrelated sources:

(a) An individual’s mastery experience, which is analogous to scaffolding and refers to stage-appropriate skills enroute to mastery;

(b) vicarious role modelling experience, which is akin to intense observation present in intent participation;

(c) social or verbal persuasion, which enhances one’s belief in one’s ability by providing encouragement and positive feedback; and

(d) physiological states or emotional experience, in which feelings of anxiety or enthusiasm for example, may influence a person’s sense of their own abilities (Bandura, 1986, 1997a, 1997b).

All four sources of self-efficacy are potentially found in mentoring, which suggest that another way to understand the causal mechanism of mentoring is through its potential impact on self-efficacy.

Bearman and colleagues (2007) suggest that of Bandura’s four sources, only mastery experience seems to tap into the instrumental components of mentoring—coaching, sponsorship, exposure, and opportunities for challenging assignments. This suggestion highlights the importance of socio-emotional functions as adjuncts to instrumental help. “It is through the mentor serving as a model and example, as a source
of encouragement and feedback, and as a support in making the experience of learning feel better and easier, that self-efficacy develops” (Bearman et al., 2007, p. 383). A timely research question would be what type of emerging self-efficacy (graduated mastery, vicarious role modelling, social persuasion, or emotional experience) is fed by which kinds of mentoring functions (instrumental or psychosocial)?

Models of the Mentoring Phenomenon

Models are the building blocks of scientific inquiry (Rosenblueth & Wiener, 1945). They are considered “mediators between theories and the world” (Morgan & Morrison, 1999). In other words, models bridge our views and conception of the phenomenon in question and the phenomenon itself and so contribute to our understanding of the world and who we are. The maturity of a field of investigation is marked by its ability to established integrated models that incorporate fine-tuned prediction and causal mechanisms (Bailer-Jones, 2009; Kuhn, 1962).

The study of mentoring as a human enterprise is, at best, very complicated and sometimes very confusing. In an effort to better understand the phenomenon and the mechanisms involved in its practice, I will present the following two causal models. Both models possess important attributes that are relevant to my current investigation. Rhodes model addresses the social skills/emotional well-being, cognitive skills, and identity/self-concept of youngsters. Chemers model relates to the mediating role of self-efficacy in science inquiry skills competence and commitment to science careers acquisitions.

Rhodes model focuses on the influence of mentoring on youth, especially those who are at risk. The author posits that mentoring achieves its positive outcomes through three interrelated processes (Rhodes, 2002b, 2005). First, good mentoring enhances the
social skills of the mentee, which in turn augments emotional well-being; second, good mentoring enhances cognitive skills of the mentee and; third, good mentoring contributes to identity development such that the protégé’s self-concepts change over the course of mentoring (Bearman et al., 2007).

Chemers model is particularly relevant to this investigation of mentoring of minoritized students in science education. The model posits that self-efficacy plays a central mediating role in student adjustments and performance at university. The studies of Chemers and associates indicate that first-year university students who rate themselves highly on academic self-efficacy set higher academic goals, perform better in classes, and suffer less stress and stress-related illness than do students scoring lower on academic self-efficacy (Bearman et al., 2007; Chemers et al., 2001). Mentoring, science research experiences in which students work closely with faculty and graduate students, along with additional supports—all contribute to self-efficacy in science inquiry skills and self-efficacy for participation in science teams. These in turn lead to the effects of dual outcomes of competence in science skills and commitment to further science education and science research careers (see Figure 2.3)
Figure 2.3. Working model for Chemer’s research project: Assessing scientific and leadership skills. All effects are hypothesized to be stronger for minorities underrepresented in the sciences.

Source: (Chemers et al., 2001, p. 63)

Chemers and his associates further hypothesize that these effects—competence in science skills and commitment to further science education and science research careers—will exist for all students but is particularly strong for minoritized students underrepresented in the sciences, for whom mentoring and additional support are needed to overcome the pervasive structural inequalities in the education system (Bearman et al., 2007; Chemers et al., 2001). Keeping in mind that mentoring is not the only contributing factor to overall positive outcomes, albeit often an important one, the foregoing
hypothesis has been shown to be true in several studies in various cultures and industrialized countries (Abernethy, 1999; Andrews & Chilton, 2000; Arbreton & McClanahan, 2002; Ayalon, 2007; Barab & Hay, 2001; Barron-McKeagney, Woody, & D'Souza, 2002; Bernice & Teixeira, 2002; Bernstein et al., 2009; Buchanan, 1999; Carline, Patterson, Davis, Irby, & Oakes-Borremo, 1998; Christodoulou et al., 2009; Darling, Hamilton, Toyokawa, & Matsuda, 2002; Ehrich et al., 2004; Fancsali, Nevarez, & Gallagher, 2005; Fort, 2005; Fresko & Wertheim, 2005; Herrera et al., 2009; Klinck et al., 2005; Livingston, 2005; McClanahan, Sipe, & Smith, 2004; O'Brien et al., 2009; Pritchard, 2006; Rhodes, 2002b; Thomas, 2001). Further mentoring research, including the current investigation, should help to tease out what kinds of systems within various contexts, youth, workplace, and/or student-faculty, mentoring should be embedded in order to yield the most optimal outcomes.
CHAPTER THREE: METHODOLOGY

The purpose of this qualitative, phenomenological research study is to explore the phenomena of lived experiences of stakeholders involved with the SMP. For the purposes of this study, *stakeholder* refers to anyone who has been involved or is currently involved in the SMP (i.e., the population of the study). The designation of *participant* or *respondent* refers to sampled members of the target population of stakeholders who completed an interview for the study (i.e., the sample). The stakeholders included as participants in the study consisted of past mentees, current mentees, mentors, school liaisons, and administrative personnel involved in the program. Data were collected about the participants’ perceptions, beliefs, and understandings during 32 interviews in the Faculty of Medicine at the University of Toronto St. George campus. Thirteen participants were past mentees (the first cohorts of the SMP), six participants were current mentees in the program, five participants were mentors for the program, five participants were school liaisons, and three participants were administrators in the program. Based on the nature and goals of this research, Moustakas’ (1994) seven-step modified van Kaam method was the optimal choice of data analysis for this study.

Phenomenology is a genre of qualitative research that began with Edmund Husserl (1859 - 1938) in his effort to develop a method for grounding consciousness and truth (Farber, 1967). Husserl posits that consciousness is presupposed in all our dealings with the world. “It is the medium through which everything objective—the world with its layers and horizons—is made manifest (Hua 9: 326)” (Moran, 2005, p. 2). This humanistic qualitative method incorporates emergent theme strategy to study the conscious experiences of individuals as they are lived every day as well as how we read,
enact, and understand our life involvements (Valle, 1998). The goal of the method is to find the essences of the experiences of individuals, and to provide understanding of how the articulation of their stories empower these individuals (Moustakas, 1994; Rossman & Rallis, 2003). Chapter 3 presents the research method and design, appropriateness of the research method and design, population, sampling frame, confidentiality, geographic location, data collection, data analysis, and validity and reliability. The chapter concludes with a brief summary.

**Research Method and Design Appropriateness**

The qualitative study used a phenomenological research design to explore the lived experiences of participants with regard to the impact of the SMP on mentees. This qualitative research approach is valuable when the researcher seeks to understand the meanings individuals make of their experiences (Morrow, 2007). “A primary purpose of qualitative research is to describe and clarify experience as it is lived and constituted in awareness” (Polkinghorne, 2005). Qualitative research is useful when the possible variables have not yet been defined, or little or no research exists on the specific population. Morrow (2007) stated:

Qualitative research is also appropriate when one needs to present a detailed and in-depth view of a phenomenon. Whereas quantitative methods can enable the researcher to get a broad understanding of a phenomenon, qualitative approaches are able to delve into complex processes and illustrate the multifaceted nature of human phenomenon. (p. 211)

Quantitative research provides the opportunity for broad generalizations to a specific population of people, whereas qualitative research focuses on a wealth of information from a smaller group of people (Patton, 2002). Quantitative research requires
the researcher to begin with an abstract idea, measure the idea with a specific procedure, and provide empirical data at the end (Chi, 1997). The quantitative process is deductive. Because the study did not rely on quantifiable, empirical data, a quantitative approach was deemed to be inappropriate for the goals of this research.

Qualitative data follows an inductive route in which empirical data is followed by abstract ideas and ends with a mixture of ideas and data (Chi, 1997; Johnson & Christensen, 2004; Merriam, 2002; Neuman, 2007; Rossman & Rallis, 2003). The qualitative strategy “begins inductively as the research works to understand the meanings of participants” (Morrow, 2007, p. 215). The phenomenological research design allowed the exploration of the meanings or essences of SMP stakeholders’ lived experiences. The study sought a detailed understanding of the central phenomenon, the lived experiences of participants with regard to the impact of the SMP on mentees, thus making a qualitative inquiry a fitting choice.

Phenomenology seeks to answer the question “what is the meaning, structure, and essence of the lived experience of this phenomenon for this person or group of people” (Patton, 2002, p. 104). Its goal is to capture the lived experiences or how individuals perceive and experience a central phenomenon (Creswell, 2005; Patton, 2002). “Phenomenology aims at gaining a deeper understanding of the nature or meaning of our everyday experiences” (van Manen, 1990, p. 9-10).

Phenomenology is focused on exploring an experience from all sides, from the perspective of the participants, until the researcher recognizes the true essence of the experiences. Moustakas (1994) stated that an individual’s perceptions were the main source of knowledge. Phenomenological inquiry requires capturing these perceptions and
the exploration of a phenomenon creates vivid and complete descriptions of experiences (Moustakas, 1994). The design was appropriate for the study because it strives to “obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience” (Moustakas, 1994, p. 13), namely, the impact of the SMP on mentees.

Relying on information of life experiences and perceptions collected from participants during interviews, phenomenological analysis integrates the following four steps:\(^3\):

(a) The epoche,

(b) phenomenological reduction or bracketing,

(c) imaginative variation, and

(d) synthesis of meaning and essences (Moustakas, 1994).

According to Moustakas, *epoche* requires the researcher suspends judgment and view the phenomenon without bias or preconceived notions, as if to see it for the first time.

Wallace and Louden (1997) declare however, that:

> No method, no matter how clearly it is represented in a Handbook, can free researchers from their preconceptions or deliver them an incontestable truth. …Even when researchers take great care with methodology, there is no epistemologically sound way of bracketing or eliminating a researcher’s prior understanding. (p. 321)

In an effort to adhere to epoche, as the researcher I acknowledged my own background and limited history with the SMP and to the greatest extent possible, made a determined effort to keep in check previous experiences, perceptions, preferences, and

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3 These steps are covered in greater detail in the Data Analysis section later in this chapter.
feelings in order to minimize interviewer bias and expectations that may eventually influence the study (Neuman, 2007).

It is impossible to completely eliminate bias by virtue of my role as a situated qualitative researcher, with my own history, perceptions, and background; however, I can significantly reduce bias by honestly acknowledging my historic location with the phenomenon being studied (Neuman, 2007; Wallace & Louden, 1997). About five years previous to meeting Dr. Mona Rateman, former Associate Dean in the Faculty of Medicine who invited me to study the impact of the program. During 1995, I read in the Toronto Star about a unique mentorship program organized by the University of Toronto Faculty of Medicine for Blacks and Aboriginal students who were still in high schools. At the time, I thought it was an excellent opportunity for marginalized students but did not enquire any further about the details of the program until I met Dr. Rateman some five years later. Prior to interviewing participants of the SMP, my knowledge of the program was at best very trite and superficial. My lack of prior detailed knowledge of the program contributed to reducing my researcher bias. Further, this study reduced potential bias by using strict data collection and analysis techniques. Each participant signed an informed consent form. The data analysis process adhered to the Moustakas’ (1994) phenomenological analysis method, which reduced potential bias. The epoche was not a single fixed step. According to Patton (2002), “The process of epoche epitomizes the data-based, evidence, and empirical … research orientation of phenomenology” (p. 485). Epoche is an ongoing process that occurs even as the second step of phenomenological reduction begins. Phenomenological reduction requires the discovery of the data in its purest form by bracketing out my presuppositions and assumptions (Patton, 2002). The
phenomenon was “taken out of the world where it occurs” (Denzin, 1998) and was analyzed in relation to current literature or existing meanings.

The bracketing process was critical in this phenomenological study due to some familiarity, though limited, with some aspects of the SMP program on my part as researcher for a number of years. Although it was impossible for me to completely neutralize all personal biases during the data collection and analysis processes, an attempt was made to identify these potential biases before beginning the interviews. This was accomplished by examining and recording personal beliefs of the SMP program and its participants. Throughout data collection and analysis, I referred to this document to minimize personal feelings and perceptions about the subject matter were not entering into the interview process and interpretation of the participants’ responses.

After bracketing, the next step in phenomenological reduction is horizonalizing. According to Moustakas (1994), horizonalizing involves treating the data with equal value. All responses are initially reviewed and examined as potentially relevant. Later, data that is found to be irrelevant to the research topic and questions are removed, leaving the textual meanings and unchanging elements of the phenomenon. “Phenomenological reduction is not only a way of seeing but a way of listening with a conscious and deliberate intention of opening ourselves to phenomena as phenomena, in their own right, with their own textures and meanings” (Moustakas, 1994, p. 92). NVivo® software is used to assist with the horizonalizing process.

NVivo® is a qualitative research software developed and distributed by QSR International. This software allows the researcher to explore, analyze, and glean information from unstructured/semi-structured data such as interview transcripts,
recordings, photographs, emails, notes, audios, videos, and feedback forms. The software provides a sophisticated workspace for working through the data in order to discover patterns, identify themes, glean insight, and ultimately deliver informed robust findings.

NVivo® was used to assign codes to every word, phrase, and expression that was thought to be possibly relevant to answering the research questions of the study. In NVivo®, each coded word, phrase, and expression is referred to as a node, or an invariant constituent.

Following phenomenological reduction, imaginative variation occurs. During the reduction phase, the invariant themes extracted from different frames of reference and divergent perspectives are analyzed. The data analysis process is discussed in greater detail later in this chapter. Imaginative variation allows for the enhancement and expansion of the themes, which provides a textual depiction of the themes. “The textual portrayal is an abstraction of the experience that provides content and illustration, but not yet essence” (Patton, 2002, p. 486).

Using the textual descriptions, structural descriptions of the phenomenon are derived (Moustakas, 1994; Patton, 2002). The structural descriptions provide the “conditions, situations, or contexts in which they experienced the phenomenon” (Creswell et al., 2007, p. 254). Through the steps of imaginative variation, the underlying and precipitating factors are discovered, which answer the question “how did the experience of the phenomenon come to be what it is?” (Moustakas, p. 98).

The final step in phenomenological analysis is the “intuitive integration of the fundamental textual and structural descriptions into a unified statement of the essences of the experience of the phenomenon as a whole” (Moustakas, 1994, p. 100). The synthesis of information allows someone who has not experienced the phenomenon an
understanding of it (Creswell et al., 2007). The value of the final step in the study provides the leadership in mentoring programs with an understanding of how students experience a targeted intervention like the SMP.

The phenomenological analysis design aligns with the goals of this study and provides guidance and techniques for conducting semi-structured, in-depth interviews. Data derived in phenomenological studies are primarily from descriptions of the phenomenon obtained in interviews (Morrow, 2007; Moustakas, 1994; Suzuki, Ahluwalia, Arora, & Mattis, 2007). The van Kaam data analysis method, as modified by Moustakas and assisted by NVivo8® software, are used to synthesize results of the study. The results generated from both enable the intuitive integration of the essences and meanings of the lived experiences of participants with regard to the impact of the SMP on mentees thus determine the extent of success of the program.

Research Questions

This phenomenological study seek to identify the impact of the SMP that is implicated as perceived success by the participants. Success of the program is marked by factors such as stronger sense of self, improved academic achievement (Jucovy, 2002a). The following two research questions provide the needed focus for the study (Neuman, 2007):

1. Based on the lived experiences of the participants, to what extent is the program successful?

2. Based on the lived experiences of the participants, what are the factors contributing to the success (or otherwise) of the program?
Research questions, from a phenomenological perspective, must seek to expose the essences and meanings of human experiences and be stated in clear and concrete terms (Moustakas, 1994). Guided by the research questions, vital information regarding the central phenomenon identified are obtained. By using a phenomenological design and analysis strategy, the research questions provide the basis for the interview questions, which lead to a rich and comprehensive description of the impact of the SMP on mentees.

**Population**

The purpose of this phenomenological research is to explore the phenomena of the impact of the SMP on mentees through the lived experiences of stakeholders involved in the program. Data is collected during interviews with 32 participants in Toronto, Canada. Specifically, the participants include 13 past mentees who are part of the first cohorts in the program, six current mentees, five mentors, five school liaisons, and three program administrators. A general profile for each participant/respondent is shown in Appendix 3.

**Sampling Frame**

Polkinghorne (2005) recommends a sample size of 5 to 25 participants in qualitative research, while Patton (2002) states that there are no specific rules for sample size. “Sample size depends on what you want to know, the purpose of the inquiry, what’s at stake, what will be useful, what will have credibility, and what can be done with available time and resources” (p. 244). Following Polkinghorne’s and Patton’s guidance on sample size, the sample size of the study consists of 32 participants, all of whom were stakeholders in the SMP.
Qualitative research and phenomenological research designs typically employ a purposeful sampling strategy, as opposed to the random sampling used in quantitative designs (Creswell et al., 2007; Patton, 2002). This study uses the purposeful sampling method to gain information-rich cases (Patton, 2002) of SMP stakeholders. Purposeful sampling is used because this study did not call for a random sample; instead, the particular participants required for this study had to be involved or have a history of involvement with the SMP. The purposeful sampling method involves me obtaining from the University of Toronto Faculty of Medicine Student Affairs Office a list of students, mentors, and administrative personnel who had participated (or were currently participating) in the SMP. This list is used to contact a purposeful sample of participants for the study who fit the criteria of inclusion as a current or past student, mentor, liaison, or administrator in the SMP.

**Informed Consent**

Ethical considerations are a serious concern in qualitative, phenomenological interviewing because the researcher inquires into the personal world of the subject (Patton, 2002). To ensure an ethical study and the participants’ rights to privacy, ethical procedures are followed closely. Informed consent for the study begins with gaining permission from the University of Toronto Ethics Review Board to obtain consent from and perform interviews with the participants of the study (see Appendix 1). There are a variety of subgroups within the participant sample and each requires its own set of consent forms, which can be viewed in the description of subject categories in Appendix 2.
The participants of the study initially receive a letter inviting them to participate in the study. An introductory letter (see Appendices A1, B1, C1, D1, & E1) and informed consent form (see Appendices A2, B2, C2, D2, & E2) are mailed to each participant. The letter and informed consent include the following information: the purpose of the study and why it is important, whom the information is for and how it will be used, how the responses will be handled, and the risks and benefits for the participant. The participants sign the informed consent forms prior to participation in the interviews. Furthermore, prior to the interviews, the participants sign audio taping consent forms, confirming their consent to be recorded during the interview (see Appendices A4, B4, C4, D4, & E4). In addition, prior to the interviews with administrative personnel, permission for videotaping was also obtained (see Appendix E5). Finally, phenomenology research investigates lived experiences and feelings of the participants in a particular phenomenon that requires a thorough attention of the researcher. Investigation of the lived experiences requires documentation of the expressions of the participants which can provide cues that can further explain the phenomena being studied (Erikson, 2006). However, given the characteristics of the participants, I as the researcher must make some risk-benefit decisions regarding certain data collection procedures. Even though this type of video data would also be useful for the other categories of participants (non-administrative), I decided against videotaping in order not to stymie honest free-flowing dialogue and the perception of possible compromised confidentiality. In the case of program faculty members/administrative directors however, I did not think video-taping would negatively impact the honesty and flow of the conversation and yet would have the ‘richer’
videotape data from which transcripts can also be obtained. Permission for video-taping is also obtained (see Appendix E5).

**Confidentiality**

Confidentiality involves keeping participants names from public disclosure and directly linking the responses to the specific participant (Neuman, 2007). Providing confidentiality is imperative when seeking honest and open responses from participants in interviews (Patton, 2002). The introductory letter and informed consent form are the first steps in ensuring confidentiality. The interviews begin with providing a discussion of both items as well as the purpose of the study and a description of how the data obtained will remain confidential.

All forms and data (written notes, audio recording, and transcripts) obtained from interviews are kept in a locked file drawer to maintain confidentiality. The information will be retained for a period of three years following completion of the study and destroyed after that period. A limited number of people handle the data. The data collected from each participant is coded to maintain its confidentiality. I expect minimal risks to the participants in this study.

**Geographic Location of Study**

The physical site of the SMP is located around the Faculty of Medicine at the St. George campus of the University of Toronto. For the six-week formal duration of the program, mentees also attend their placements at associated neighboring large teaching hospitals such as Mount Sinai, Toronto General, Princess Margaret, Toronto East General, as well as physicians’ offices throughout the Greater Toronto Area. The University of Toronto is Canada’s largest and oldest University currently boasting over
70,000 full-time students and situated in Canada’s largest and most multicultural city. Despite the overall diversity of the university community however, the student population in the faculty of medicine is far from being representative, especially with respect to Aboriginals and Blacks. The former Associate Dean of Student Affairs, Dr. Mona Rateman, Professor of Pediatrics who served for over 13 years, in her interview noted that:

In addition it was also quite evident that there was a very multicultural medical school class but there was some under representation of certain groups and the First Nations groups was one and also there were Black medical students entering somewhat sporadically. One year there would be one, another year there would be two, some years there’ be none whatsoever so that was a bit of under representation when one considered what was happening in the greater, greater Toronto area and in southern Ontario as the population looks changed.

Data Collection

The data collection process began after the study received Education Research Ethics Board (ERB) approval. The goal of the qualitative, phenomenological study is to capture the lived experiences in relation to the central phenomenon (Neuman, 2007), in this case, the impact of the SMP on mentees. The mentorship experience consists of six weeks of formal intervention which includes classroom activities such as lectures and seminars as well as out-of-class exercises—visiting doctors’ offices, hospital wards, and operating rooms (see page 10 of Appendix F). The program also incorporates a voluntary indefinite post-six weeks aspect in which mentees are free to contact their mentors for advice or other support. Target group students—Aboriginals and Blacks, are recruited as mentees from participating school boards in the Greater Toronto Area via an application
process through the school’s guidance office (see Appendix F). Data collection occurred
during the interviews with 32 participants of the study. Each participant signs an
informed consent form (see Appendices A2, B2, C2, D2, & E2) and an audio taping
consent form (see Appendices A4, B4, C4, D4, & E4) before beginning the interview.
The administrative personnel members also sign consent forms for video-taping the
interview (see Appendix E5).

The phenomenological research design usually employs interviews as its source
of data (Moustakas, 1994; Patton, 2002; van Manen, 1990). For a researcher to
understand the lived experience of another, he or she must experience the phenomenon as
directly as possible, which highlights the importance of interviewing (Patton, 2002).
Phenomenology uses interviews “as a means for exploring and gathering experiential
narrative material that may serve as a resource for developing a richer and deeper
understanding of a human phenomenon” (van Manen, 1990, p. 66). This study seek to
understand the lived experiences of the stakeholders involved in the SMP, and an
alternative method, such as surveys, would not provide the depth of information sought.
Outcomes in phenomenological research are not reached unless rich and deep
descriptions are gained (van Manen, 1990).

As recommended by Moustakas (1994), an outside source transcribes the
recorded, face-to-face interviews. Morrow (2007), Moustakas (Moustakas, 1994), and
van Manen (1990) encourage outside transcription as a way to validate the data and
reduce potential researcher bias. The data collection process provides the necessary data
to describe the impact of the mentoring program as experienced by the participants
involved. However, qualitative data collection methods such as interviewing are
susceptible to potential researcher biases. To minimize these potential biases, it is advisable to include multiple modes of data collection such as archival records, interviews, direct observation, participant-observation, and physical artifacts or interviewing of different categories of respondents for the purpose of triangulation. According to Stake (1995), triangulation ensures accuracy and alternative explanations to emerging themes. The requirement for triangulation arises from the ethical concern to confirm the validity of the process and the findings. In this study a wide range of evidence is collected by interviewing five categories of respondents with different backgrounds and perspectives on their experience of the mentoring phenomenon (Yin, 2009).

As a science teacher/educator, I have a vested interest in the academic achievement and long-term success of all students. I have a keen interest in programs and interventions such as the SMP that enhance my own teaching area. Also, as a Black Jamaican-Canadian immigrant who has personally experienced marginalization and racism, I am particularly interested in programs and interventions that will enhance the long-term career success of racialized students who continue to be systemically under-represented and even shut-out of progressive careers such as medicine. It is impossible to dissociate my cultural and social history from my person as a researcher; however, in order to minimize bias, I am cognizant of this vested interest and have been particularly diligent in checking my actions and procedures during this investigation.

**Interviews**

The phenomenological research design provides the structure and details the essential assumptions for exploring the central phenomenon of the study: the impact of
the SMP on mentees. The study employs a phenomenological interview procedure, as identified by Moustakas (1994):

The phenomenological interview involves an informal, interactive process and utilizes open-ended comments and questions. Although the primary researcher may in advance develop a series of questions aimed at evoking a comprehensive account of the person’s experience of the phenomenon, these are varied, altered, or not used at all when the co-researcher shares the full story of his or her experience. (p. 114)

The interview is approximately an hour long and begins with a review of the interview protocol for each of the participant groups (see Appendices A3, B3, C3, D3, & E3), followed by the interviewer asking the participant to reflect on the central phenomenon. My task as a researcher is to create a comfortable climate in which the participant would respond thoroughly and truthfully (Moustakas, 1994). To accomplish this goal, the interviews took place in face-to-face settings. In the case of mentees both past and present, the interviews takes place in a private closed-door room in the Faculty of Medicine on the University of Toronto, St. George campus. In the case of mentors, teacher/guidance liaisons, and administrative personnel, interviews are scheduled at their convenience and are held in private rooms at their places of work.

All interviews with the exception of one—a past mentee refused to be interviewed—progress very smoothly and participants are generally very cooperative and expressed their opinions and ideas quite comfortably, and in some cases with much passion, conviction and determination. Almost invariably, mentees would state that “this [mentoring program] is an experience that I will never forget for the rest of my life.” In the case where the past mentee was not cooperative and in fact appeared quite angry and agitated during our introductory conversations, it seems to be a result of his several applications to medical school and was not accepted. However, it is also possible that his
mentoring experience was not a positive one and feels more comfortable not to talk about it. He eventually decided not to carry through with the interview. I expressed my thanks and asked him to keep in touch when he was ready. He never called back or completed the interview.

It is notable that during the data collection there were students who without prompting were very eager to relate their school experiences in relation to their involvement with the SMP. Even though this aspect of the data is an artifact of the process and not directly related to the research questions posed in this study, its prominence in the data would suggest that school experience is important from the mentee’s perspective. The possible relationship between school experience and the program success factors is analyzed further in the results and discussion chapters.

In-person interviews provide an advantage to researchers in that the nonverbal communication and nonverbal cues help to guide the interview process and the selection of interview questions to further probe and explore the deep and rich lived experiences of the participants (Suzuki et al., 2007). The study uses a semi-structured interview format with open-ended questions such as: What was the most important aspect of the SMP? Tell me about your experience during the SMP (see Appendices B3, C3, D3 and E3. “The semi-structured interview is designed to cover a common set of themes but allows for changes in sequencing of questions and the forms of questions, enabling the interviewer to follow up on the interviewees’ answers” (Suzuki et al., p. 311). In addition, semi-structured interviewing allows for a natural conversation flow (Suzuki et al., 2007). The intent of the interview questions is to elicit the lived experiences of the SMP stakeholders in relation to their perceptions of the impact of the SMP on mentees (see Appendices H1
to H5 for transcript exemplars for the five categories of participants). The audio-taped data is transcribed with the aid of a Panasonic® VSC (variable speed control) transcription machine. In cases where there are transcription difficulties such as broken-off word/sound (e.g., ‘fishi-‘), Drew’s (1995) standard transcription convention is followed (see Appendix F). The transcribed interviews are analyzed using Moustakas (1994) modified van Kaam method, which is explained in the data analysis section.

Validity and Reliability

In qualitative research, validity “refers to the bridge between a construct and the data” (Neuman, 2007, p. 120). Validity also refers to being truthful and authentic. Qualitative researchers seek authenticity, which equates to providing a sincere, reasonable, and balanced description of the viewpoint of a person who lives the phenomenon every day. Reliability in qualitative research means dependability or consistency (Neuman, 2007). Golafshani (2003) comments that in qualitative research, reliability and validity are conceptualized as trustworthiness, rigour, and quality. According to Rossman and Rallis (2003) however, “for a study to be trustworthy, it must be more than reliable and valid; it must be ethical” (p. 63). Golafshani’s statement is important to note because the requirements for validity and reliability in qualitative studies are less empirical than those in quantitative studies.

Although internal and external validity are terms typically used in quantitative, experimental research (Neuman, 2007), internal validity in qualitative studies requires the researcher to establish that the results are “credible or believable from the perspective of the participant in the research” (Trochim, 2006, para. 3). External validity in qualitative research is the ability to transfer the results of the study to other contexts or settings.
(Neuman, 2007; Trochim, 2009). The following paragraphs provide some details of attempts to improve the validity and reliability of this study.

Interviewing is the best method for phenomenological designs (Moustakas, 1994; Patton, 2002) as it increases the likelihood of capturing the lived experiences. Patton indicates that the researcher is the instrument in qualitative studies; thus, he or she is an important part of increasing validity in a study. One way to increase the validity of the researcher is the *epoche*, a stage in the methodological process where the researcher suspends judgment and any preconceived notions of the phenomenon (Farber, 1967; Moustakas, 1994; Patton, 2002). Wallace and Louden (1997) points out however, that it is not possible for the researcher to completely eliminate bias and preconceptions which inevitably lead to judgment. In an effort to improve the validity of this study, as the researcher I have acknowledged and declare my own background with respect to the phenomenon being studied in order to determine where the balance of evidence lies.

To ensure the study is reliable, the collection of data process is consistent for all participants, thus obtaining comparable descriptions of the lived experiences. All of the interviews for mentees are conducted in the same location at the University of Toronto Faculty of medicine using the same set of interview questions and person who transcribes the recorded interview data. Reliability is also established in the consent process, in which the participants are informed that they could choose to leave the interview and end their participation in the study at any time without the risk of repercussions. Moreover, the guarantee of confidentiality given to participants also helps to increase the reliability of the study because participants are given the necessary protections for them to provide honest, open responses during the interviews. The strength and reliability of
phenomenology is the ability to obtain the thick, rich descriptions of the phenomenon under study (Patton, 2002).

**Data Analysis**

The interviews of this study are analyzed with Moustakas’ (1994) seven-step, modified van Kaam method of phenomenological inquiry (see Figure 3.1 below). Phenomenological analysis “seeks to grasp and elucidate the meaning, structure, and essence of lived experience of a phenomenon for a person or group of people” (Patton, 2002, p. 482). Phenomenological analysis involves four steps: *epoché*, phenomenological reduction, imaginative variation, and the synthesis of meanings and essences. Because phenomenological analysis is not just a description of the phenomenon, but an “interpretive process” (Creswell et al., 2007, p. 253), the data analysis phase uses Moustakas’ (1994) seven-step modified van Kaam process. The modified van Kaam method, analogous to the process of distillation, involves an hierarchical treatment of the interview data and is used in conjunction with the NVivo8® software program, which aides in the organization and categorization of the data. The seven steps of the modified van Kaam (Moustakas, 1994) method include:

1. Listing and preliminary grouping: List every expression relevant to the experience (horizontalization).
2. Reduction and elimination in order to determine the invariant constituents, test each expression for two requirements:
   
   (a) Does it contain a moment of the experience that is a necessary and sufficient constituent for understanding it?
(b) Is it possible to abstract and label it? If so, it is a horizon of the experience. Expressions not meeting the above requirements are eliminated. Overlapping, repetitive, and vague expressions are also eliminated or presented in more exact descriptive terms. The horizons that remain are the invariant constituents of the experience.

3. Clustering and thematizing the invariant constituents. Cluster the invariant constituents of the experience that are related into a thematic label. The clustered and labeled constituents are the core themes of the experience.

4. Final identification of the invariant constituents and themes by application validation—check the invariant constituents and their accompanying theme against the complete record of the research participant:
   (a) Are the themes expressed explicitly in the complete transcription?
   (b) Are they compatible if not explicitly expressed?
   (c) If they are not explicit or compatible, they are not relevant to the participant’s (co-researcher’s) experience and should be deleted.

5. Using the relevant, validated invariant constituents and themes, construct for each participant (co-researcher) an individual textural description (ITD) of the experience. Include verbatim examples from the transcribed interview.

6. Construct for each participant an individual structural description (ISD) of the experience based on the individual textural description.

7. Construct for each research participant a textural-structural description (TSD) of the meanings and essences of the experience, incorporating the invariant constituents and themes. From the individual textural-structural
descriptions, develop a *composite textural-structural description* (CTSD) of
the meanings and essences of the experience, representing the group as a
whole (see Figure 3.1).
Figure 3.1. Author’s compilation of steps in the Moustakas’ (1994) modified van Kaam method of phenomenological analysis.
The first four steps of Moustakas modified van Kaam method is used to code the data and create invariant constituents and thematic categories. The term invariant constituent (IC) refers to any particular relevant expression, comment or ‘key word group’ or important fractions/elements or components found in the text of the interviews. For example, if a participant mentions, “I think definitely coming through the program and finishing the program I got more focused,” the comment could be understood as an example of increased focus on academic studies. When other participants mention similar comments, those comments are recorded as examples of this invariant constituent: “Desire to concentrate on academics.” Thematic categories are abstract representations of the perceptions and lived experiences of the participants with regard to their involvement in the SMP.

Thematic categories (TC) as distinct from themes, consist of collections of similar invariant constitutes, statements or expressions made by the participants with regard to their experience, that refer to the same theme or topic. The creation of thematic categories is the final step in the analysis process before the creation of the narratives that represent the data: the individual structural descriptions (ISD), textural-structural descriptions (TSD), and composite textural-structural descriptions (CTSD). The categorization of invariant constituents into their thematic categories is used to generate the individual textural descriptions of each of the participants’ experience. The process entails the use of textural examples of specific instances of particular invariant constituents from the text of the interviews. These specific examples are then used to construct the individual textural descriptions.
The composite textural-structural descriptions (CTSD) constitute the final level of representation of the data in Moustakas’ (1994) modified van Kaam procedure. The CTSD is when the findings of the textural-structural descriptions are condensed into the themes that represent the essence of the phenomena as experienced by the participants. The construction of the CTSD is completed in order to summarize the lived experiences of the participants. These composite descriptions present the experiences of the group of participants as a whole. This is necessary in order to draw conclusions and answer the research questions.

Although Moustakas’ method of phenomenological inquiry calls for the creation of four sets of descriptions (individual textural descriptions, individual structural descriptions, textural-structural descriptions, and composite descriptions) to represent the data, during the generation of these descriptive categories, it is found that the results of the analysis would be unnecessarily burdened by the first set of descriptions—the individual textural descriptions. Because 32 participants are included in the study, the inclusion of individual textural descriptions for each participant would have added superfluous and repetitive material to the chapter. Instead, integration of the individual textural descriptions into the third set of descriptions, the textural-structural descriptions, is chosen. In this way, the reader is exposed to the quoted text from the interviews of the participants without having to wade through excessive repetition of the participant’s quotes.

Data for the study comes from interviews with 32 UTFMSP stakeholders. The recorded and transcribed interview data are organized and assembled to allow for data analysis using NVivo® software. This software is used to synthesize the data and allow
for a comprehensive phenomenological analysis. This process is appropriate as it allows me as the researcher, through clearly defined steps, to extract the essences and lived experiences of the participants.

**The Use of NVivo8® Software with the Moustakas Modified van Kaam Process**

NVivo8® software is used to execute the first four steps of Moustakas (1994) phenomenological analysis procedure. As is stated in the research design section above, NVivo8® is initially used to identify information found to be relevant in the review of the participants’ responses. Once the interviews are reviewed and coded, the coded elements or nodes are reviewed and a list generated of relevant and salient terms that emerge from the participants’ responses to the interview questions. NVivo8® is then used to run text search queries on each of the words throughout the texts of each of the interviews. This allows the researcher to see the number of participants who report each node, as well as what participants mention what nodes. Based on the nodes found in the text of the interviews by running the text search inquiry, the researcher is able to assign codes, identifying what is represented by the nodes. However, because not all queried words are relevant to the research questions, review of each appearance of each node throughout the text of the interviews is required to ensure that only relevant expressions are included in the analysis. Additional incidental/unexpected nodes such as “school experience” mentioned earlier are also identified in the review of the queried terms.

The reduction and elimination of the invariant constituents (nodes) constitutes the first part of the second step of Moustakas’ (1994) modified van Kaam method: The expressions are examined to determine if (a) the experience contains a moment that is considered an important element for understanding the experience or (b) the moment of
the experience can be separated and labeled as a horizon or value to the experience (Moustakas, 1994). The experiences labeled as horizons are considered “invariant constituents of the experience” (Moustakas, 1994, p. 121). In order to execute this step, the nodes are reviewed, and irrelevant nodes are removed from the analysis. Relevant nodes are combined based on similarity. Relevancy is established by the context in which the statement is reported. This step generates the total number of invariant constituents included in the final analysis and presentation of the data.

The third step of the data analysis requires the clustering and thematizing of the invariant constituents. In NVivo8®, the clusters of invariant constituents are organized into tree nodes (branches of coded elements) and then into attributes (thematic categories). These attributes constitute the final six thematic categories included in the analysis. The matrix coding queries in NVivo8® is used to access data that represent how many participants mention each invariant constituent in each of the thematic categories. Once the thematic categories and the invariant constituents of which they are comprised are established, the final four steps of Moustakas’ (1994) phenomenological method are completed.

Each of the final four steps—(a) individual textural descriptions, (b) individual structural descriptions, (c) textural-structural descriptions, and (d) composite structural descriptions—involves the creation of descriptions to express the data in a rich narrative from structural and textural perspectives. In NVivo8®, compound queries are used to identify relevant quotes from participants to include in the individual summarized textural descriptions. Reports are generated by NVivo8® to display the frequencies of occurrence (for each participant) for each invariant constituent in each thematic category. The data
from these reports are entered into a Microsoft Excel® spreadsheet and reorganized in order to generate the tables representing the participant data.

Furthermore, the data analysis process is conducted for each of the five stakeholder groups that comprise the participants of the study. This process allows for comparison/triangulation of the results of the data for each category of informants—past mentees, current mentees, mentors, school liaisons, and administrators. For the administrators, a transcript of the video was used for coding, and the particular visual details of the participant’s body language were noted.

**Triangulation**

Triangulation refers to the integration and interpretation of multiple sets of results from different data sources. Denzin (1978) suggested that there are at least four types of triangulation:

(a) Data triangulation, using multiple data sources for supporting a claim;
(b) theory triangulation, using different theoretical lenses for interrogating data;
(c) investigator triangulation, using two or more collaborators; and
(d) methodological triangulation, using different general methodological perspectives and approaches.

In this study, data triangulation was used in order to incorporate multiple perspectives on particular issues, such as the themes involved (Patton, 2002). The triangulation of the data from each of the five categories contributes to the richness and depth of analysis by providing multiple angles to understand the phenomena of mentee experiences in the SMP (Johnson & Onwuegbuzie, 2004; Lincoln & Guba, 1986; Penn Towns & Serpell, 2004; Schwandt et al., 2007). Results from the analysis of a particular participant in a
given category are interpreted in light of the results of a different participant in the same
category as well as participants in other categories. In other words, the essence of a
mentee’s experience is interpreted not only in light of his or her own personal experience
but also in light of other mentees as well as mentors, liaisons and administrators. This
process allows for some level of interpretative objectivity on my part as the researcher
and improves the validity of the method. The results of the analyses are presented in
chapter 4 in five distinct sets of individual textural descriptions, individual structural
descriptions, textural structural descriptions, and composite descriptions. The composite
descriptions represent the triangulation of the results of the analysis with regard to the 5
participant groups. Although the NVivo8® software assists in “data storage, coding,
retrieval, comparing, and linking” (Patton, 2002, p. 442), I as the researcher, am
responsible for conducting the actual interpretive analysis. Therefore, the steps outlined
in this section provide a framework for a proper, effective, and valid analysis.

**Summary**

The purpose of the qualitative, phenomenological study is to explore the lived
experiences of SMP stakeholders concerning their perceptions of the impact of the SMP
on mentees, specifically with regard to success of the program and the associated
contributing success factors. Chapter 3 provides an explanation of the research
methodology and design, as well as their appropriateness for the study.

“Phenomenological research seeks the meaning, structure, and essence of the lived
experiences of a specific phenomenon” (Patton, 2002, p. 104). Researchers aspire to gain
a deeper understanding of the nature or meaning of everyday experiences through
This study utilize a phenomenological interview approach, using open-ended questions to obtain a comprehensive description of the lived experiences (Moustakas, 1994). Ethical data collection procedures ensure the confidentiality of the participants. Moustakas’ modified van Kaam phenomenological analysis method with the help of NVivo8® software allows for the analysis of the qualitative interview data. Chapter 4 will detail the results of the study and provide an analysis of the collected interview data. The results will include the extracted themes that represent the lived experiences of the SMP participants.
CHAPTER FOUR: DATA ANALYSIS

The purpose of this phenomenological, qualitative research is to investigate the lived experiences of mentors, mentees, liaisons and administrators involved in the SMP. The study is attempting through a pseudo-inductive process to determine the level of success of the program and factors that may be responsible for its success. The process involves discovering and distilling positive and negative experiences, ideas for improvement, and to determine the impact of the SMP goal of encouraging and exposing Black and First Nation teenagers to the medical profession. The study also seeks to gather some insights into the impact of the rigours of a university academic environment, which many of the SMP participants may face upon completing high school. This chapter documents the implementation of the data collection procedures and the pseudo-inductive data analysis process using the van Kaam (1966) method as modified by Moustakas (1994) and assisted by NVivo8® software.

Inductive analysis, as opposed to deductive, is usually defined as working from the data of specific cases somewhat like the process of distillation to reach a more general conclusion (Strauss, 1987). “Qualitative analysis often (but not always) seeks to construct hypotheses by mucking around for ideas and haunches in the data rather than by deriving those hypotheses in the first instance from established theory” (Schwandt, 2001, p. 214). Chapter 4 begins with the demographic information about the participants. A review and analysis of the two major research questions will follow. The individual textural-structural descriptions are next in the section, followed by the structural composite descriptions, which address how participants feel about the emergent themes of the study. The chapter concludes with a summary.
Demographic Information

The 32 participants in the study include: (a) former/past mentees—first cohort of mentees who have now reached significant academic milestones such as completion or near-completion of an undergraduate degree; (b) current mentees; (c) mentors who served both the original cohort as well as current mentees; (d) teachers/liaisons (who were familiar with the program, know, and work closely with both mentored students as well as their non-mentored counterparts in mentees’ high school); and (e) participants who were administrators of the SMP (see Table 4.1). Another factor to be noted, everyone who was interviewed was provided with a pseudonym; therefore, all of the names used in this analysis were not real except for the three administrators: Dr. Mona Rateman, Ms. Gina Cummer, and Ms. Viki Longman. These administrators were very comfortable and confident with being visible and open with their involvement in the SMP. As the researcher, this visibility was significant since these participants were well-known and well-respected members in the fields of medicine and education. This made it easier to write about during the data analysis while not compromising the promised confidentiality.

Table 4.1

Demographic Data for Participants

<table>
<thead>
<tr>
<th>Category</th>
<th># of participants*</th>
<th>% of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>First cohort</td>
<td>12</td>
<td>39%</td>
</tr>
<tr>
<td>Current mentees</td>
<td>6</td>
<td>19%</td>
</tr>
<tr>
<td>Mentors</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>Teachers/liaisons</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>Administrators</td>
<td>3</td>
<td>10%</td>
</tr>
</tbody>
</table>

* n = 32
Research Questions

This section reiterates the research questions guiding the study. These research questions were reiterated during the semi-structured interviews with participants. In addition, the research questions guided the phenomenological analysis and interpretation of the data:

1. Based on the lived experiences of the participants, to what extent is the program successful?

2. Based on the lived experiences of the participants, what are the factors contributing to the success (or otherwise) of the program?

Supported by the background literature in chapter 2, the first research question was used to frame an exploration of the enabling factors and youth competencies being addressed by the program. Evidences in the data for possible ‘success factors’, such as confidence and empowerment, as well as competencies, such as a mentee taking on responsibility, becoming engaged in school programs, and having an active awareness of his or her personal goals, were closely inspected. Even though permission was received to collect and review objective academic and demographic data from high school and university records previously released to the SMP (see Appendices A2 and B2), this data was not collected because it was not available to the researcher from the administrative office. However, the semi-structured interview protocol exploring personal issues (see Appendices A3 and B3) allowed for some probing regarding the effects of the program on academic success.
Interpretation of Data

This section presents the results of the phenomenological analysis of the participant interviews. The fluid nature of phenomenological research and the data collection process provides distinct advantages. It is important to note that the chief advantage is that responses to interview questions may touch on thematic characteristics of the research that are not specifically covered by any single research question or interview question, thus allowing new information to emerge. This characteristic of phenomenological research is an advantage because it does not confine the interviewee to a narrow set of answers; instead, he or she is allowed to express more fully individual perceptions, beliefs, and lived experiences. Lived experiences are especially relevant to this study because many times, the experiences that are acquired in one context can spill over into other contexts. Lived experience becomes paramount in the context of this particular study because of the diversity of people interviewed which allows for triangulation of emergent themes. The study is not limited to just mentors, or just past mentees, or just current mentees, or only the directors; there are interviews from all of these disparate groups. Therefore, the information compiled expresses a rich and wide range of thoughts, feelings, and experiences about the SMP.

This study relied on Moustakas’ (1994) modified van Kaam (1966) method of phenomenological analysis. As stated in the Data Analysis section of this chapter, because a large number of participants were involved in this study, the individual textural descriptions of the participants were not included as their own section. Instead, in order to convey the results of the study in a more accessible and concise manner, the individual textural descriptions were combined with the textural-structural descriptions (see Figure
3.1 in chapter 3). Therefore, the presentation of the interpretation of the results begins with the individual structural descriptions of the participants.

**Individual Structural Descriptions (ISD)**

This section presents a summarized description of how each of the individual participants felt about the SMP. Individual structural descriptions provide the fundamental depictions for each participant’s perceptions and feelings with regard to the thematic categories that arise through the phenomenological analysis of the participant interviews. The section organizes the summarized structural descriptions by each participant group. The section addresses the 13 past mentees, followed by the 6 current mentees, the 5 mentors, the 5 liaisons/teachers, and the 3 administrators for the SMP.

**Individual Structural Descriptions for Former Mentees**

**Structural description for Winsome.** Winsome had a very positive experience as a mentee at the SMP. She became more focused after the SMP participation. She states,

> I think it definitely put me on a more focused academic track. I think before starting the program, I had sort of aspirations to going into medicine but I don’t think I really understood how hard it is to get in.

The program gives her a more definite set of goals. She feels that she entered the program too late and is sure to mention that she feels it is more beneficial to have at least one more year of school after leaving the SMP:

> I think it would have been probably more beneficial in terms of helping me choose which courses I need to take as an OAC student if I had done it before I had started Grade 12.
She was contacted by her guidance counsellor in order to join the program. Overall, her experience with SMP was a positive one.

*Structural Description for Marie.* Marie was introduced to the program by a friend who had participated in SMP the year before. She was already planning on attending university, therefore began the program later than most of the other participants:

I was coming from a different place than other people. Most of the other people were going back to high school in the September coming while I had already finished high school and I was going on to university and I had already gotten accepted to the University of Toronto.

She feels that the SMP has a strong impact on her post-secondary choices as well as her work ethic:

I think that program, I left it with confidence, I guess, confidence that I was able to do it if I really wanted to and to find ways and means to do it.

*Structural Description for Angela.* Angela learned about the SMP from school announcements. She has a very positive experience in her time at the SMP:

It was absolutely wonderful. I don't know where to begin. I met some of the most wonderful doctors.

She considers her time of entrance, which was at Grade 11, to be an ideal time for her to have entered the program:

I think Grade 11 was the perfect, I think that is the perfect time for students to come in.

She considers the mentors to have a strong impact on her academic life, as do almost every other past and current mentee. She considers one of the most important parts of the
program was the chance to interact with other people who came from a similar background:

I'd say 90% of his patients were Black and although what he did every day did not seem very interesting, the fact that he like reached out to the people in the community, he knew everyone by their names, he said he got to know them on a very personal basis and that really interest me and it showed me a new side to medicine.

She considers SMP to have a definite impact on her desire to enter the medical field.  

**Structural Description for Karl.** Karl attended the SMP between Grades 11 and 12, which falls within the agreed timeframe that most participants considers the best time to enter the program:

I just finished grade 11 and I was interested in science, math and all that so that was, at that time it was the main reason why I did the program.

He considers hands-on interaction with the medical field e.g., surgery, visiting with patients, and especially interacting with the mentors to be the most important parts of the program for him personally:

The professors, the teachers, just meeting everybody associated with the work, with the organization because, I mean yeah being able to go into the operating room, seeing the labs, doing all that, I mean, that was the physical part but what was more important, at least to me was talking to these people. I mean, they talked to you on your level.

The program has a deep effect on his personal and academic life as well.

**Structural Description for Donald.** Donald was influenced by a guidance counsellor to attend the SMP. He entered after Grade 12, but notes that now that OAC has been eliminated, after Grade 11 would be the best time to enter the SMP:
I believe so because basically what happened was with the skills I learned during the SMP, I basically applied it to my OAC year and that was basically a good benefit because by that time I was in OAC.

The SMP also positively affects his high school and university experience:

Without the SMP, as far as university is concerned, I basically would have been spoon fed of what I should have done and probably not being happy at the end result.

Attending the program also gives him greater confidence:

I had an idea of what I wanted to do, had an idea as far as studying wise and it really helped me out and it kind of gave me more of a confidence.

**Structural Description for Nick.** Nick and Aruna were university students so they both fall into the special category of someone who was simultaneously peer mentoring and being a mentee as well. Nick’s perspective in that sense is unique in relation to the other mentees because he was already in university. However, that being said, Nick has a positive experience in the SMP:

I especially enjoyed the mornings when the students would come up and I was able to give them some information about what I was doing and it just teach them and talk to them and interact with them.

He noted that the SMP is a critical place for students to gain knowledge that they may not get until they are in the last year of university:

I thought the SMP is a very good program. I thought it was great to expose any child at any age and from any background to get to expose to, you know, researchers and what happens and from high school, I think it was a natural experience that I am sure a lot of them might not have had otherwise until at least maybe their final years of university. He felt that
the interactions he had with hands-on experiences were important to his further academic development.

**Structural Description for Aruna.** Like Nick, Aruna was already a university student when she entered the SMP. Her perspective is slightly different than the other mentees and it would be appropriate to note a piece of Aruna’s interview where she noted:

> We had the unique experience of being both mentored and being mentees because at that time we were already in university and could talk to the students about applying to university, about surviving high school.

She was able to help her own situation while also giving something in the way of mentoring to the younger students. Her experience was very positive.

**Structural Description for James.** James entered SMP between Grade 11 and Grade 12, which he considered to be a good time to enter the program. He considered the SMP to have an influence on his choice to apply to medical school and his increased interest in medicine:

> I am sure if I didn’t do the SMP, the chances of my wanting to become a doctor would be slimmer.

The experience of interacting with medical professionals was important for James. He said:

> I appreciated you know the experience of being able to visit different health professionals.

**Structural Description for Sara.** Sara entered SMP between Grade 11 and Grade 12. She considered that to be an ideal time to be part of SMP:

> I think it was a really good experience and interesting for me.
She also notes that it has important impact on her post-secondary academic life. Although she ultimately has not decide to pursue medicine, unlike almost every other student interviewed. She notes that the exposure to the research environment at the University of Toronto was integral in forming her opinions to leave Ontario and study in Quebec.

**Structural Description for Kate.** Kate is one of the few first cohort participants who did not pursue a degree in the sciences instead opting for English and film studies. However, her exposure to university life helped her a great deal academically when she entered the last year of high school and her early university career. She was exposed to various research methods and experienced a great sense of exposure and independence:

We did a research project that was pretty helpful in terms of getting the experience and working at a university library.

She also enters SMP between Grade 11 and Grade 12, which puts her in with most of the rest of the current and past mentees. She feels that it is a good time to enter the program:

If I did it the year after I would have already been kind of deciding whether I was gonna go into … actually helped me to decide if I wanted to pursue it or you know just going into medicine or not. It was a good time to do it.

**Structural Description for Clive.** Clive enters the SMP after Grade 11. He was introduced to the program when a vice-principal approached him. He was in the pilot program so there was very little advertising about the program at that stage. He feels that the SMP greatly impacts his life post-program and even thinks it helps him with skills that he uses in his current profession as a computer programmer:

I got exposed to a lot of different people, different types of things that people were doing and it sort of helped me realize that hey medicine isn’t just about being a doctor or a surgeon but it was a lot more than that. I
guess I sort of got involved with a lot of the computer software development.

He also mentioned that interacting with the mentors and having hands-on experience was integral to his positive experience of the program. He said that the most important part of the program was:

Probably working alongside people, helping them out with their research.

**Structural Description for Greg.** Greg thinks that the best time to enter the SMP was some time within the last two years of high school when he participated in the program:

I would say still it would have to be the senior level of high school; probably the last two years of high school and I say that because this program you are given a lot of responsibility.

After SMP Greg notes that he is much more motivated academically and is more goal-directed due to the SMP:

After the SMP I was a lot more motivated. I was motivated before but after the SMP it was a lot more because I saw a definite goal.

He found it a great boon to learn about university academic life before he actually entered university. It should be noted that Greg also went on to serve as a coordinator for the SMP while in university. He was also the first mentee of the SMP to graduate from the University of Toronto Faculty of Medicine and is currently a fellow in ophthalmology in one of Toronto’s largest and well-respected teaching hospital.

**Structural Description for Sandra.** Sandra learned of the program from a friend and was then recommended by a teacher. She had a positive experience participating in the program:
It was fun, you got to go to the doctor’s offices and see the patients and they introduce you as a student who wants to get into medicine.

She attended between Grade 12 and OAC (Ontario Academic Credit/formerly Grade 13). The adjustment for the current changes in Ontario education made her enter between Grade 11 and Grade 12, which puts her in the range that most of the other participants considers the best time to participate in the SMP. She also found that being mentored by people of underrepresented minorities to be important and she said:

Just seeing doctors who look like me. … Oh yeah, it makes the path easier. It just makes it look … I’m not saying it’s easy but it just makes it less difficult. Just that belief that well you know they did it, I mean I could do it too.

Her confidence increased a great deal from her experience at SMP and she noted that she felt like completing the program allowed her the chance even to show off:

I showed off to everybody that I got credits for it—for doing something fun.

**Individual Structural Descriptions for Current Mentees**

**Structural Description for Angel.** Angel is a current mentee in the SMP and was positively impacted by the interaction with other minoritized students that were mentors in the program. It was important to interact with people of a similar background. She passionately comments:

I will never forget the positive energy that was there cause like at school your really feel tension sometimes between friends and stuff but here it was like everyone was just nice and it was just all positive. There was not bad talking about people and anything like that and a lot of the older students would talk to you and were really nice.
Angel’s perception of school is one where for most Black students there is more emphasis on socializing rather than academics:

They are not really dedicated to doing the work, they want to socialize a lot.

Angel also felt that certain teachers were not dedicated enough to actually teaching:

You see when they don’t care, like I had a teacher who like he’d be teaching one minute and then the next minute he’d just assign whatever work. He didn’t even explain what it is we are supposed to be doing and it’s like we have to look in the text book and learn it ourselves so I think teachers really need to be dedicated to teaching cause then it shows through in the way they teach.

Further, she notes that the lack of culturally sensitive school environment and learning materials is breaking their spirit adversely affecting the future of minoritized students:

It made me feel bad because I mean I know there is a lot of good Caribbean and African art. Well look Africans are more into sculpturing but I know there are paintings that were done by Africans too and I would like to see some more of those.

**Structural Description for Stella.** Stella had a very positive experience attending the SMP. She was apprehensive at first, but noted that by the end she didn’t want to leave:

In the beginning I was kind of not exactly enjoying it but towards the end I was like it’s getting better and better and on graduation day I didn’t want to leave.

She entered the SMP when she was about to start Grade 12, which puts her within the range of other students who were interviewed. She found interacting with Black mentors very helpful and also it was important to do hands-on activities:
It meant that Black people could succeed, they have just as much potential as anybody else. If they work hard they can get whatever they want.

**Structural Description for Adriana.** Adriana skipped a grade in elementary school and is entering the program at Grade 12 as a 15-year-old, which is unique among those mentees interviewed. She is highly motivated and wants to enter dentistry when she graduates. She stated that her goal was:

> to go into dentistry but if everything goes to my plan because I planned it all out, I should be a dentist by the time I’m 25.

She is also actively involved with tutoring as an extra-curricular activity. She felt that hands-on experiences were very important to her positive experience in the SMP. She remembered two specific experiences:

> I’ll never forget that emergency room visit because I’ve actually never been in an emergency room except for once but I was a patient.

The other experience that stood out for Adriana was, the anatomy lab, which she related by saying:

> I’ll remember the anatomy lab very clearly because like being around like the dead parts is very interesting.

**Structural Description for Yolanda.** Yolanda heard about the program through a friend and then encouraged her parents to help her apply. She thinks that there is a lack of interest by other Black students about academics in her high school:

> A lot of the Black students are not focused when it comes to academics. They would rather play. They are more into their sports than academics.
She is, however, fairly involved in extra-curricular activities as well as school. She counted hands-on experience and meeting doctors from minority groups as the most memorable and positive parts about the SMP experience:

It was really good seeing me having Black mentors because I was able to see people who are Black in such a high position in society like they are doctors.

**Structural Description for Kisha.** Kisha is entering Grade 12 and was accepted to the engineering and medicine SMP. She chose to do the medicine program because she was less familiar with it:

I picked medicine cause I knew a lot about engineering so, I wanted to get to know more about medicine.

Her hands-on experience with the mentors she had has further encouraged her to pursue her goal of going into dentistry:

I know I wanna go into dentistry and become an orthodontist.

She felt that teachers sometimes did not do enough to encourage student’s interests. Her perception of other Black students in high school was one where she felt they were not at all interested in science as a field of study:

Some people are doing well and some people and just slacking. They don’t have the interest. The reason I think is because people don’t have like an interest that they want.

**Structural Description for Charm.** Charm is entering Grade 12 and volunteers with younger students on the reserve in Northern Ontario where he lives with his parents. Charm indicates that of his peer group on the reserve very few were interested in school at all. He notes:
In the beginning of our school year there will be almost 200 students and then by the end of the semester it’s gone down to like 120.

This was mainly due to alcohol abuse. Charm feels that the most positive part of the program was the hands-on experience:

   It was interesting to see more careers too that you can’t see on the reserve so it was a good opportunity for me.

**Individual Structural Descriptions for Mentors**

**Structural Description for Dr. Holmes.** Dr. Holmes has been participating in the SMP as a mentor since 1994. He thinks that it is especially important for Blacks to be exposed to the opportunities of medicine at such an early age. He said of his time in medical school that it was important:

   When you walk around the campus and look around at the graduates of the different years and as a Black person you also want to identify with other graduates.

This idea he took to heart and wanted to encourage that kind of community for students still in high school. He also noted that:

   I think people tend to gravitate towards their own for the most part. You know as far as Black mentors mentoring black children, I think or I would assume that Black children would identify stronger with Black mentors.

**Structural Description for Dr. Hull.** Dr. Hull has been working as a mentor with the SMP since its inception in 1994. He was asked by the founders of the program to join. Dr. Hull noted, and not disparagingly, that the SMP has had little impact on his life, however he tempered that by explaining:

   The impact of the SMP for myself might not be a big significance because part of me is mentoring, moreover the time period is relatively short. …
Hopefully it has made enough of an impact for the student rather than an impact on me.

Dr. Hull also echoed as all of the other mentors did that they do not get enough feedback from SMP in general about how the students are doing after they finish the program.

**Structural Description for Dr. Salk.** Dr. Salk was very outspoken about the qualities of the SMP. He thought that it was a very important thing for the students to be exposed to other minorities their own age as well as mentors who were from minoritized groups. This he thought would help to create the community that has not existed, according to him, since his arrival to Canada in the late 1960s. He refers to the fact that he perceives the community as “fractured” and that many of the innovations are not community oriented. He said:

> Unfortunately, the community hasn’t worked as a community which is a bigger set back because if you see all the things that are happening it’s all happening by individuals and all that.

Dr. Salk also opined that having more feedback from the SMP in order to get some progress report on their mentees would be very beneficial to the mentors as a whole.

**Structural Description for Dr. March.** Dr. March noted that his experience as a mentor was very positive. He thought that the whole idea of mentoring was a valuable one, especially for minority students because:

> I have found that the response from the student has been what I found encouraging in a sense that when they become aware that there are Black people who are highly qualified in our society – something that is not openly publicized, I think it gives them hope.
Giving hope is very important to Dr. March because it is something that is not reinforced for many of these students, and positive reinforcement is one of the main goals of SMP. Regarding race he also cautioned, saying that he has always been:

Encouraging to Black students including my children who are Black in this country, that you must never use your blackness either as a tool to go places or as an excuse for not getting to places.

Dr. March also would like more feedback from SMP.

*Structural Description for Dr. Jamlin.* Dr. Jamlin, who is originally from Jamaica, was the only mentor to respond that she herself had previous mentors. She noted that it was a great help to her when she was a medical student. She also noted that it was very important for students to be engaged in the activities that the SMP provides on a very general level, just because it exposes teenagers to real life situations they may not have experienced before. Though supporting the relevance of background in mentoring, Dr. Jamlin was also the most critical of concentrating on a particular minority group rather than encouraging more ethnic communities into the SMP:

I think it is very, very reassuring for them to see someone who looks like them and someone who grew up in their neighborhood who have gotten somewhere. But I also think it’s important for them to learn to mix with people from other groups and someone who might be a higher socioeconomic group to learn that there are people in these groups who you can relate to.

*Individual Structural Descriptions for Teachers/Liaisons*

*Structural Description for Mr. Dale.* Mr. Dale has been teaching for 15 years and has been involved in the SMP for four years since being a counsellor. Mr. Dale thinks
that through the SMP there is a marked difference in the knowledge, academic commitment, confidence, and goals that the mentees display. He states:

It [the program] gives them the ambition and the knowledge. Knowledge is power ... Yes, they do want to do medicine but it’s one of those things; it’s the know-how as in who do I speak to, who do I go to. I think what this program does that, it gives like I said before, the knowledge as in who to go to. Although you can go to your guidance counsellor and ask these types of questions, those people who have been in the program they make connections, they’ve networked, they have actually spoken to and have numbers of people who they can contact within the medical field, the profession of their choice and say to them, you know, I am applying to do this, what should I do, or what marks should I have, or who do I speak to. They have that ability and that knowledge that they can get to speak with someone directly about it. Whereas the student that didn’t take the program, they are still relying on the counsellor with respect to the information that they need to get.

The matter of confidence was a recurring theme in Mr. Dale’s interview:

I know I’ve noticed confidence. They are really confident about themselves, sure of themselves and willing to, when I’ve had some of them in my class; they are the first ones to say this is what I did during the summer and are willing to tell their story to other students. Hey, this is a program you’ve gotta be a part of and that’s what I noticed with the students when they come back. They are confident; they are sure of themselves and more happy to spread the word about the Program and how it could benefit their colleagues or their classmates. ... if you have a lot of confidence you take a lot of risk and if you fail at the risk, it wouldn’t matter because you have the confidence within yourself to try another avenue of doing some thing. It’s just like poker chips and the more poker chips you have the more risk you wanna take and yet if you fail you still have a lot more poker chips so I feel that confidence with them is
important to students because even if they fail at something they are trying or doing, they can pick themselves back up and try a different avenue.

Mr. Dale also speaks about the power of inside information available from a community of practice, the “tricks of the trade” that is able to propel you to where you want to go:

there is also little tricks to the trade so to speak as in sometimes it’s not what you know it’s who you know and within the mentorship program I know of one student who lacked experience within a certain area so she went to a person that she met during the mentorship and said can I work with you for free, volunteer at your clinic for the summertime and low and behold, the person was able to volunteer and it was in dentistry and she was able to get into dentistry when she applied.

He thinks that it is an important component that the SMP is geared toward Aboriginals and Blacks because it creates more balance or as Mr. Dale puts it:

I think to put in bluntly; it’s to level the playing field. There are years that have gone by and history will tell that those who were able to get by and always move ahead were people who were not of a minority background. Now with this program, the program was developed to level the playing field and to see that we are living in a multicultural society and you see it in every institution that there’s not enough diversity within any type of field. You see it in teaching, you see it in dentistry, you see it as doctors, yet we are in a society this is a very multicultural but there is not enough to help those within the society who are of a minority background. So I find that this is not, and I repeat NOT A PROGRAM WHERE ITS JUST CATERING, WELL IT IS A PROGRAM TO BLACK STUDENTS AND FIRST NATIONS BUT I THINK IT’S A PROGRAM THAT IS LONG OVERDUE [emphasis added].

Many students from Mr. Dale’s high school have gone to the SMP and he has a reasonable connection to many of the students that are still in high school, but not the
ones who had graduated from post-secondary institutions. Mr. Dale feels that one of the main advantages to the SMP was that it creates a network for the students to become involved with and have contacts in places where they were interested. However, he also feels that guidance counsellors in general are not really committed to the program:

Some of the guidance counsellors would say, you know, I will mention it to my department but I can’t guarantee anything so they are pretty much like, we’re not gonna push it.

**Structural Description for Ms. Poly.** Ms. Poly is a vice-principal and has been in the Canadian education system since she graduated from university. She notes that one of the great benefits of the SMP was the fact that after completing the program students who may have had goals or dreams can now add to that firm motivation and a new energy to their goals because they have lived and experienced the medical profession firsthand. It is no longer completely foreign to the students. She notes:

It’s the fact that you are working with students that are highly motivated, they know what they are interested in, they are exploring this as a possibility so just the excitement of that. The people that talk to the students are excited about the fact that somebody else is excited about the same topic and they’ve just been really incredible speakers.

Like Mr. Dale, she has a lot of experience with the students who have come back to school after the program, but less contact with those who have left high-school and are now in the university system. Ms. Poly also thought that part of the advantage of the SMP was the fact that it created networking connections for the students. They had inside help in the field of medicine all the way back to high school:

you know they come back with an experience that nobody else has had and that gives them a leg up and what I found is more of them are more
adventurous so they go into the program – this is what they want to do but they are gonna go to York or Ryerson and all of a sudden its like you know what “I’ve explored this and it’s Dalhousie. I’ve talked to a doctor who went to Dalhousie” and all of the sudden they are looking at Dalhousie or McGill. “[It] will allow me to continue with my French and with this and then I can come back and go to U of T Medical School.” So you have all sorts of thinking that goes on and again as I said the reflection and the fact that they get to talk with people who have been through all of this.

Ms. Poly thinks however, that a small percentage of students did not do well in the program because they may have joined for the wrong reasons:

there have been very few students that haven’t done well in the program. ... I can think of maybe two – they both passed the program but generally what it was – they sort of joined the program for the wrong reasons. You know, where it was for credits or for the social aspect of it and they didn’t get as much out of it. So in my experience, I can think of only 2 that didn’t do well and when I say that I mean the marks were lower than 60 generally.

Ms. Poly also thinks the program offers opportunity for active reflection where students can decide if this career is for them:

A positive outcome is when the student starts to reflect on what they have gotten out of the program so on reading the journals for instance, you really sort of see a transition from the complaining about oh its long hours and whatever else, to be “I don’t want this to end, oh this week or today really touched me and has me thinking about this, I’m gonna join this organization” and that sort of thing so you see that happening ... come out of the program saying it’s not for me and to me you have learned something about yourself in doing that and saved yourself probably a ton
of money these days also but you know the exploration and the reflection part are crucial and I think that’s probably the greatest benefit for students.

With regards to the profile of student best suited for this program, Ms. Poly thinks:

A student who has the ability to go to university, maybe is not working up to their full potential, sort of is – you know school is there and it’s something they have to do but it’s not something that they are giving their all to. ... a student maybe who is a “B” student rather than an “A” or “A+” student who you know has family support but you know the family maybe doesn’t have money to give them enrichment that other students might have. So for instance they don’t get to travel very often or if they do it’s always with family it’s not that they are seeing something new and different, a student who is involved in their school – who you know has a sense of belonging to their school and who wants to give back and who wants to do better. Who we actually are getting now in a lot of cases are student who are bright, meaning they are “A”, “A+” students, they know what they wanna do - they’ll get there regardless.

Ms. Poly also thinks a combination of “A” and “B” students for the program would make good pedagogic sense:

I think a mix of both because I think the A student is motivated by the B student. They see somebody else and they might think hey, this person is getting A’s and I’m just as smart as this person. I’m gonna work towards that. You know how student are in terms of, you know they meet people and you talk about group work and the whole reason behind a lot of it is that the peer influence has more to do with anything in terms of if you and I are hanging out together and whatever else and you’re doing well and you’re successful and I wanna hang out with you and your friends, that’s what I have to do in order to be part of your group right?
Structural Description for Mr. Alton. Mr. Alton is a teacher whose specific specialty is helping students who were unsuccessful in science or school in general. He was involved from the school-board side of the SMP since its creation in 1994. Mr. Alton feels that his involvement in the SMP has been his “gift to the city” and that he is attempting to enrich the community of Toronto as a whole. He definitely feels that the SMP has been doing a good job in creating more confidence, encouraging students academically and helping those mentees to reach goals that may have never been considered before entering the program. For students who were involved in the program, he observes:

- Confidence, a sense of pride in their capabilities, a sense of accomplishment, a sense of they can do it, that this is not an insurmountable goal, a sense of being a proud member of their community, a sense of wanting to come back and help their younger colleagues.

Regarding the matter of why self-confidence is so important in the life of students, Mr. Alton notes:

- If someone feels good about themselves, that means that they don’t have to spend a lot of time in those sorts of self conscious issues. They feel good about themselves, they have an identity, they know who they are then they can move on in terms of gaining their full potential from school. I guess this may seem simplistic but seeing people like themselves who ‘made it’ in their eyes, gives them the feeling that well if they can do it, I can do it.

As pointed out by Ms. Poly, the current reality is that the majority of mentees in the program are of “A”, “A+” caliber, Mr. Alton notes however, that this was not the original intention:
We certainly would not exclude but our focus was not really on the “A” student. We were looking at the average student and you can define average however which way you want. We were looking in kids who were interested, who we could sort of work with, help develop social skills, interpersonal skills, organization skills, study skills along with learning some science.

Alton felt that helping underrepresented minorities was very important, but that his hope is that the program can branch to socioeconomic class as well, in order to help in “removing barriers to create opportunities to level the playing field” in medicine and medical science.

**Structural Description for Mr. Charles.** Mr. Charles has been participating as a teacher liaison with SMP for four years. He feels that many of the students have benefited greatly from the experience of being part of the SMP. Mr. Charles has noticed that students who return from SMP have an increased interest in their grades, increased motivation and more focus. Mr. Charles also noted that he is interested in concentrating more resources on students that are not the highest academic achievers, but given the right focus or experience could be very good students.

**Structural Description for Mr. Porter.** Mr. Porter’s main function in relation to SMP is to give the program publicity in his particular school district and encourage the board to recruit students to apply for the program. Mr. Porter thinks that the type of student that could benefit the most from enrolling in the SMP is a student that is motivated, but may not have the self-belief/self-confidence that other students have. After a student with such aspects gets through the SMP there will be a sense of self-belief because he or she has witnessed first hand that there are other people out there who had the same goals and achieved them. They can return to school with the confidence that the
goals are not out of the realm of possibility. Another interesting aspect of Mr. Porter’s description is that he thinks that any race can easily mentor any other race:

I’ve come to realize over the years that a White person for example or a Chinese one, a South Asian can teach a Black kid anything. What those individuals like a Chinese, South Asian or Aboriginal can’t teach a Black kid is how to be Black. For example, I can teach a young Black male how to be an adult Black male because I’ve made that transition and I know what it is.

Even though Mr. Porter’s opinion was a slightly different idea from those expressed by the majority of the interviewees, the notion of looking for some common ground with respect to mentoring was still evident.

**Individual Structural Descriptions for Administrators**

**Structural Description for Dr. Mona Rateman.** Dr. Rateman is one of the founders of the SMP. During her tenure as Associate Dean of Student Affairs for the Faculty of Medicine at the University of Toronto, she decided that the medical students needed to have more exposure to the community surrounding them. She identified that one important place that such exposure would be well-served was through interaction with underrepresented minorities, especially Blacks and Aboriginals. This was especially important to Dr. Rateman because she wanted to have students interacting with the changing population of Toronto. In response to the question of why focus on underrepresented minorities in Toronto, she stated:

There was some issues of communication and not just language communication but cultural communication that would be overcome and it was very, very important in health care that the health professional get
accurate information from the clients or patient and they can then use this information.

Cultural competence in the practice of medicine was very important to Dr. Rateman. Part of her mission was to alleviate cross-cultural burdens that would negatively impact the provision of proper medical care especially for racialized/marginalized patients.

**Structural Description for Ms. Gina Cummer.** Ms. Connelly, who subsequently became Director of Education for the Toronto District School Board (TDSB), Canada’s largest (and North America’s fourth largest with over 280,000 student population) and most multicultural board, began work with the SMP in 1994 at its inception. She worked closely with Dr. Rateman, Ms. Donna Angus, and Ms. Viki Longman to encourage local students from Toronto who were from underrepresented minorities to take an interest in science in general and the discipline of medicine in particular. With her help, the first group of seven students attended the SMP in 1994. Ms. Connelly noted that there have been plenty of examples including students who have gone through the SMP that have come out the other side with an increased motivation and desire to achieve in academics:

Yes we have some research that demonstrates that students that attend and that were tracked when they go back to their schools, have been able to have the confidence to pursue certain career paths, become more motivated in their studies.

**Structural Description for Ms. Viki Longman.** Ms. Lister was another of the early administrative volunteers in the SMP who later became a superintendent of education for the TDSB. She shares many of the same concerns as her colleague Ms. Connelly. One of the important concerns that she pointed out is that there needs to be a commitment to making sure that the students of underrepresented minorities are given a
“level playing field” that has been mentioned by other interviewees. She was very forceful when stating:

If they’re doing more poorly, the onus is on us to provide the kinds of programs and supports that will enable them to be successful to eliminate that kind of systemic discrimination that seems to, appears to exist.

This type of equity is a very important felt quality to both Ms. Lister and Ms. Connelly’s opinions on the SMP as well as to that of Dr. Rateman.

Textural-Structural Descriptions (TSD) and Composite-Textual-Structural Descriptions (CTSD)

The TSD and CTSD constitute the final levels of representation of the data in Moustakas’ (1994) modified van Kaam procedure (see Figure 3.1). The CTSD is when the findings of the textural-structural descriptions are condensed into the themes that represent the essence of the phenomena as experienced by the participants. The construction of the CTSD is completed in order to summarize the lived experiences of the participants.

TSD and CTSD are strategically combined to illustrate the responses of the participants culled from their respective interview transcriptions. The analysis of the data results are presented categorically in response to the two research questions of the study. The response to Research question 1 that relates to the extent of success of the program, is presented as a balance of evidence and counterevidence for the readers decision. For Research question 2, that relates to the factors contributing to the success (or otherwise) of the program, such enablement factors include:

(a) empowerment,

(b) connection and belonging,
(c) acceptance and identity, and

(d) futures orientation (career focus).

Research Question 1: Based on the lived experiences of the participants, to what extent is the program successful?

Evidence of program success.

While there was some reported counterevidence—evidence that points to levels of inefficacy of the program—majority of the participants said that the program was effective and therefore considered successful. Twenty-three of the 24 participants who were asked to rate the program on a scale of 1 to 10 gave a median and mean score of 9 with scores ranging from 6 to 10. One mentor stated:

I think the concept [SMP] is excellent in a sense that we are dealing with a lot of young ethnic kids who probably have no idea of the fact that we have quite a few people, especially people of colour who are of certain professions in the city [Greater Toronto Area].

In the following sections, I present findings of evidence of the program success (success indicators) followed by counterevidence.

Testimony of teachers/liaisons consider the program effective. The teachers/liaisons that are involved with the SMP have a unique perspective in that they are able to see the immediate results of the SMP on the students when the students return to school for Grade 11 or Grade 12. The teachers/liaisons are able not only to authentically assess and evaluate the improvement of the mentees against themselves but also to assess and evaluate comparatively with a peer group of students who did not attend the program. All five teacher/liaison participants felt that the program was effective in improving competencies such as increased confidence, more academic focus, self-belief, and
determination (see Table 4.2). Two out of 5 of the teachers/liaisons thought that the SMP had created an effective network for the participants to utilize as they continued on toward university. Ms Poly noted:

They’ve networked, they have actually spoken to and have numbers of people whom they can contact within the medical, the profession of their choice.

She continued:

Some of the things I’ve seen them do is they get involved in some of the organizations they were in contact with over the summer. This becomes much easier to accomplish when you have already had intimate contact with people within the profession of choice.

Ms. Poly for example, comments when asked why she continues to participate as a liaison for the SMP:

The people that talk to the students are excited about the fact that somebody else is excited about the same topic.

It is not only that the students get excited, but it gives physicians, surgeons, and dentists the chance to expose young people to their passion. Ms. Poly also mentioned that from the student’s end, there is visible difference in the students when the program is over:

You really sort of see a transition from the complaining about oh its long hours and whatever else, to be I don’t want this to end.


Table 4.2

*General Perceptions of Teachers/SMP Liaisons*

<table>
<thead>
<tr>
<th>Invariant constituent</th>
<th># of participants to offer</th>
<th>% of liaisons to offer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program is effective</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>Wanting to help community</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Low level of communication from SMP about mentees</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Perceptions of SMP as a networking tool</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Good to concentrate on Aboriginal and Black students</td>
<td>4</td>
<td>80%</td>
</tr>
</tbody>
</table>

\*n = 5

Mr. Dale, another teacher explained:

I think the ones who went through the program benefited a great deal educationally, their ambitions were higher and I think their success rate in school is higher than those who haven’t gone through the program.

Many of the teachers had similar responses when noting how easy it was to see the change that had impacted the students after their return to high school. There was increased motivation and dedication to a particular goal. Mr. Dale continued:

It affects them in a sense that they know where they are going. It gives them the ambition and the knowledge.
Mr. Charles presented an even wider global coverage of improvement among mentees:

Attendance improved, basic interpersonal skills and relationships with people improved, their marks improved at school, interest improved in terms of school and learning about professional activities, university, kids who were not considering university – we got this from interviews – they would say I wanna go to university. I don’t necessarily want to go to U of T but this is where I wanna go. I can think of one young man who did not go into medicine, I think he went in architecture. He went to Waterloo but he always came back and said, “look what I gained from this program, organization, discipline, self-worth—I keep going back to that—you’re gonna feel good about yourself, pride and if I needed help, I know where I could turn for help and I didn’t feel alone.”

**Contributions to mentees’ academic work and career goals.** It is important to understand what experiences the students gained and what competencies were achieved as a result of the intervention during the summer (see Table 4.3).

### Table 4.3

*How SMP Affects Mentee’s Academic Work Post-Program as Reported by Teachers/Liaisons*

<table>
<thead>
<tr>
<th>Invariant constituent</th>
<th># of participants to offer this experience</th>
<th>% liaisons to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased confidence</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>Desire to concentrate on academics</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Desire to enter medicine</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Goal oriented motivation</td>
<td>2</td>
<td>40%</td>
</tr>
</tbody>
</table>

*n = 5*
Certain indicators that were important were to find whether there was increased motivation, an interest in pursuing a career in medicine or at the very least, having a firmer definition of how to achieve certain goals. Past mentee Winsome explained:

I think it definitely put me on a more focused academic track. I think before starting the program, I had sort of aspirations to going into medicine but I don’t think I really understood how hard it is to get in, in terms of how much work you have to put into it and I think definitely coming through the program and finishing the program I got more focused and I knew what steps I had to take in order to position myself to have a career in medicine or a successful university career to begin with.

Three-quarters (76%) of all the mentees responded that their work habits and desire to concentrate on academics was heightened considerably by enrolment in the SMP. Students were exposed not only to different work and study habits, but also a different environment for such habits, mainly the university setting. Many past mentees who went on to university noted, as Marie did:

I was comfortable with the university as well, that’s another thing, I was really comfortable with the university because I’d already been here. I was here during the summer.

Arguably, this is an important skill for any teenager to develop. The differences in academic atmosphere between high school and university are markedly different. It appears that, to expose high school age students to the rigours and fluidity of university is to give those students tremendous leg-up when those students actually enter a university. As Winsome aptly said:
I think definitely coming through the program and finishing the program I got more focused and I knew what steps I had to take in order to position myself to have a career in medicine or a successful university career to begin with.

Nick, another former mentee, stated:

It showed me how research is done and how to read scientific articles and … it taught me a number of life skills that I still use to this day and it also exposed me to research protocol and techniques which help me in my subsequent year course.

Such skills are invaluable as a student enters university. Nick, who was already a university student, also mentioned an important point regarding advanced learning opportunities:

I am sure a lot of them might not have had [experiences] otherwise until at least maybe their final years of university.

There was also a level of independence that is imbued in students who are participating in the SMP, as Karl remembered:

In high school it’s so structured in what you have to do and when people get to university a lot of people can’t adjust to it cause they are used to someone telling them what to do and not used to doing things by themselves so it was a good experience.

It can be very difficult to adjust to a place where the rules are much less clearly defined, deadlines are more fluid, and even the structure of the day is not as rigidly codified as it is in high school. This mentoring environment can be contrasted with the high school scenario from a current mentee who said, when comparing high school and the SMP experience:
It’s structured but not in a sense of this is the time, you have to do this and bells ringing every few minutes right.

The SMP was instrumental in preparing mentees for the realities of post-secondary learning. Former mentee Karl provides a useful personal anecdote about his experience with the differences between university and high school academics when he remembered:

I could have gotten away with an A at high school but I couldn’t really get away with it in university.

SMP allows students much more lateral mobility, letting them decide more about their personal decisions. To lend further credence to this important factor in the SMP Greg recounted:

After the SMP for my high school projects, I would actually come out to the university libraries to do my research and so on.

Clive, a past mentee had this to say about his success today:

Yeah, yeah, absolutely I mean I don’t think if I hadn’t had the SMP I don’t think I’d be working for this research agency right now writing software for them. I wouldn’t have been doing web designs for Nation Wide African Community magazine I mean I wouldn’t have been doing any of those things. I probably wouldn’t have been working at a really well paying job to help me get through university I mean yeah, I think the mentorship program has been, really, really just; it’s really helped me I think.

Dr. Hull one of the mentors was convinced that mentoring helps and that is why he continues to contribute. This is what he had to say:

Other groups ... the Chinese, the East Indians, sort of the Jewish kids and these people they have problems. All ethnic groups have their problems just like any others but yet consistently you find they are represented at the
high educational levels, and I have one conclusion I came to is that again, they have really strong role models. I don’t see any strong cultural background and support and think that’s something that we tend to be lacking in the Black communities. If by being a mentor I can do that in some little way then I think I should.

**Contributions to building confidence in mentees.** Just under half of all the participants (40%) comments on the role of the SMP in building confidence. All five teachers/liaisons corroborated the mentees’ responses by reporting increased confidence of the protégés after completing the SMP. Ms. Poly for example, notes that another marked difference in student attitude is that:

> The student has to be returning to high school after and I think the biggest change is self-confidence.

Ms. Connelly, an administrator notes:

> We have some research that demonstrates that students that attend and that were tracked when they go back to their schools, have been able to have the confidence to pursue certain career paths and become more motivated in their studies.

Regarding the mentors and other participants Ms. Connelly also comments:

> The mentors, I attribute all of their work to the success of this program. We've got some really dedicated teachers and administrators like [--] who support it and we have parents who support. To me it's one of the (...) best examples of partnerships that we have.

Some of the students (32%) feel that the SMP is a significant motivator to pursue medicine as a profession. Angel a current mentor says:
Just coming for mentorship when we see other Black students who you
know are in medical school, who are doctors, it makes you feel more
connected and related.

Angel continues:
I will never forget the positive energy that was there cause like at school
you really feel tension sometimes between friends and stuff but here it was
like everyone was just nice and it was just all positive. There was not bad
talking about people and anything like that and a lot of the older students
would talk to you and were really nice.

There are also many responses of a more general nature about how the students react to
their academic goals post-SMP. One student notes:

In the mentorship program it was more hands-on and more getting the
experience whereas school it is more tell you about what you would
experience if you were there.

**Counterevidence of program success.**

Though indication of the program success has been documented, there was some
evidence however that would suggest some shortcomings that need to be addressed. What
is not said is also important, however, as a researcher, there is little that can sometimes be
done. For example, there was one participant—a past mentee—who turned up for
interviewing but after my brief introduction and the request to sign off, he decided not to
follow through. He seemed somewhat agitated, he was not willing to discuss the issues,
and he did not take up my offer to call back when he was ready. He did mention however,
that he did apply for admission to the University of Toronto Faculty of Medicine on
several occasions but was not accepted. It is possible, that his refusal for interviewing
was a consequence for not being accepted to medical school.
Communication issues. The five mentors interviewed generally have similar encouraging views about the focus, direction, and values of SMP. Although the perceptions were certainly similar, sometimes the mentors were more critical of the program and how it should be focused. One of the biggest complaints from all 5 (100%) mentors was the lack of feedback for the work that they do (see Table 4.4).

Table 4.4
Mentor’s General Perceptions of SMP

<table>
<thead>
<tr>
<th>Invariant constituents</th>
<th># of participants to offer this experience</th>
<th>% of mentors to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire for feedback from SMP</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>Important for high schoolers to be exposed to minorities in the medical field</td>
<td>3</td>
<td>60%</td>
</tr>
<tr>
<td>Mentoring is rewarding</td>
<td>3</td>
<td>60%</td>
</tr>
<tr>
<td>Positive outlook/experience of the SMP</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Had prior mentors</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Importance of learning real world situations</td>
<td>1</td>
<td>20%</td>
</tr>
</tbody>
</table>

* n = 5

It must be noted that none of this seemed like they needed congratulations, but rather, as Dr. Holmes said:
It would be kind of nice to just get a little notice to say doctor so and so, this student got into medicine. You know that sort of thing and it would be positively reinforcing.

Dr. Hull, another mentor has this to say regarding the lack of specific feedback:

This student who was in the office [as a mentee], now he’s there [e.g., U of T] ... that would make me (...?). It would sort of add to the value of my mentoring. So it would reinforce that what I’m doing is a good thing and also get me more enthusiastic, well not that I am not enthusiastic but at least I could tell and talk with my friends ... talk to other people, especially people of other ethnic groups and say you know look at this, we are doing this right now.

Another area of communication that Dr. Holmes and the other physician mentors discussed was the potential benefit of some professional development in the area of ethics and confidentiality/privacy. Not that they are ignorant regarding their professional responsibilities in protecting their patient’s privacy, but some guidance and leadership on how best to navigate this slippery slope of patient/doctor relationship with a non-liable third party added to the mix:

The only thing sometimes in a doctor’s office is the privacy sort of thing and sometimes you wonder ... students per se so I just hope that everything is o.k. We don’t get them to sign any privacy papers. Anything that goes on between the doctor and the patient, I usually have them sit there and they listen to me taking histories and stuff and some of them will come in when I examine them and all that. No patients have ever refused. Yeah, one day a guy had something to say but for the most part the patients are very cooperative. So sometimes I just wonder whether the line between the patient/doctor relationship and whether that is being crossed.
Dr. Holmes also mentioned that in his office is “usually the first time I have made contact with the student.” This arrangement appears to be somewhat problematic. The mentor meeting the mentee in the busy, sometimes stressed clinic or office setting for the first time does not help in developing “professional” working relationships and behaviours in the specific location with the specific mentor.

Also, regarding the apparently inadequate communication between the program operators and the mentors, Dr. Holmes seemed somewhat uncomfortable that he did not have a bigger picture of the overall program for the mentee:

I know there is the mentor/mentorship thing and I know there’s the research project but I’m not too sure if there are other aspects of the program beyond that. Besides the project that the student do during the program and the mentors that they see during the time that they are in the mentorship program, I mean what are the other aspects of the program?

The evidence suggested that mentors were very interested in the long-term success of their protégés. Dr. Salk for example, proposed a longitudinal assessment of the program:

There should be a feedback and you should follow these kids. You should have a 5-year hiatus and [then do a] follow-up [on] these kids in 5 year.

This has the potential not only to help the SMP in general, but also to inform mentors if what they are doing is having any impact. Dr. Salk continued:

You will know what they [protégés] are doing and what they are going to do next and then there should be feedback [to mentors].

Dr. Salk did not stop there, further elucidating:

It would be nice for this program to come back on a yearly basis to let us know what has happened to these kids who have gone through this mentorship program.
Budgetary and financial bottlenecks. The SMP like most educational initiatives is not immune to budgetary constraints. A program such as this one is even more vulnerable since it does not get direct core funding from the Ontario Ministry of Education or the University of Toronto. Dr. Rateman, an administrator of the program shares her concerns:

The other factor that I see as a main obstacle and a restricting factor is if the school boards are themselves undergoing some extreme budgetary constraints and that means you know that their ability to assign new teachers to a summer program is in some way ... and that might be a limiting factor to expanding the program and possibly continuing it.

Dr. Rateman is hopeful however that the program will survive:

I would hope to be able to stabilize the funding for the program so that even if the program did not grow much larger at U of T, I would like also to have additional faculties come on board. The faculty of Education would be a very good faculty I think to have on board. ... I would hope that we could get some possibly external funding to help with having the teachers assigned and you know ... to pay the salaries of the teachers for a summer assignment. Maybe we might be able to find some funding from a foundation otherwise that would provide consistent funding each year to allow the program to continue.

Dr. Rateman is also concerned about the lack of stability and need for institutionalization or sustainability of the program within the boards of education just in case the major player, the Toronto District School Board (TDSB) decides to pull out:

They [other participating Greater Toronto School Boards] have had a little line that they know [the critical major role of the TDSB] but if it’s [the SMP] not institutionalized in the school boards and if the Toronto District
School Board backs out ... it’s a problem [for the sustainability of the SMP].

In addition to the budgetary constraints at the program administrative level is the socio-economic challenges faced by racialized families who need the program. Ms. Connelly also comments on this significant issue:

Well one of the barriers that's there as well, cause we get the feedback from our students ... and its a good program, there was considerable pressure for some of the students still to get a summer job for the summer or do the day care for their siblings for the summer and that was a commitment to their family. ... It's a major commitment for kids. They need money.

From a mentee’s perspective this is what Winsome has to say regarding financial challenges faced by families and potential mentees in particular:

I could go home and work on my project. Whereas, I know a lot of my peers maybe they weren’t in the program but all they did all summer was work because they knew that if they were going to university in a couple of years they need to work. So I think for me it was fine, but I know if I had other work responsibilities things would be different.

As a possible solution Winsome suggests:

It’s really important that the program has to be funded. One of the good things about when I did the program, I’m not sure if it still works today but we got compensated for being in the program, like as in terms of a scholarship or bursary ... now that university is getting so expensive, if a student is confronted with [the option] of getting a job working all summer (maybe its not something related to his/her career goals ... perhaps its working at a book store in a shopping mall, or doing this program and not getting paid, its too bad that most often students are going to have to pick
the option that gives them some financial ... rewards. I think its so crucial that the program comes attached with financial employment because it gives students who are from ... lower income families, or those [for whom] working is the only option, allow them to go on and pursue this really beneficial program while not sacrificing ...

Ms. Poly, a teacher/ liaison respondent corroborates the opinions of the administrators as well as the mentees but is nonetheless very hopeful that the program will weather the economic storms and expand to other cities:

My only concern is as the cost for post-secondary goes up, for students to take 5 or 6 weeks out of their summer when they could be earning money, is a bit problematic but you know, maybe some great private donor will come through and offer to pay minimum wage for part of the program or offer them jobs that they can do after the program or something like that. I think that’s sort of gonna be the biggest obstacle, is that the students that you need to attract and want in the program can’t afford to be there but I see the program staying in the long run and I’m actually hoping that the model is adopted by other universities, expand it to other cities. Look at other disadvantaged groups within different cities and work with it from there.

Program accessibility issues. The degree to which the SMP was accessible to the target group was to some extent counter-effective and appears to be needy of some attention. Winsome, a past mentee was not only critical of the process but also made some suggestion for a solution:

I don’t think it was a fair system because there were other people in my class who I know would have definitely benefited from this program but I guess because my guidance counsellor liked me I guess compared to the other students. That’s the only way I found out about it. It wasn’t something that all students had access to. It had gone through her office,
she hand-selected who[m]ever she wanted and pushed them on. So, its 
unfortunate. It worked for me. I guess who[m]ever it works for, it works 
for them. So I think, when I came back I actually told her. I said well it’s a 
great program and maybe for next summer you could have it in the 
guidance office where you have all the other summer opportunities and 
maybe advertise it more to other students in that age group and target 
group.

Regarding critical influences such as advertising and promotion of the program, Angel a 
current mentee, had this to say:

I think to advise more about what we do here in the program, because 
when you hear about 6 weeks of school they [target students] don’t want 
to have anything to do with that but if they [the SMP promoters] explain 
what it is they [mentees] do while they are here, a lot of people would be 
interested.

Some of the teachers/liaisons have been working hard at creating better publicity for the 
SMP, but there is still a wide disparity of ways students learned about the program (see 
Table 4.5). The highest reported percentage was those who heard from friends (22%), 
which could indicate that some past participants did enjoy their experiences during the 
SMP and encouraged their friends to give the program a chance. Another 15% were 
introduced to the program by their guidance counsellor and another 11% via some sort of 
announcement, indicating a low level of system participation within schools and 
community programs. Unfortunately, greater than half of the mentees (52%) did not 
specifically report how they learned about the program. Even though there is no clear 
majority regarding how people learn about the program, learning from friends seemed 
most popular. There are many instances of last minute teacher information, a friend who 
had done the program before, or even a vice-principal informing the students. From this
information, it is clear that there is a need to systematize recruitment and advertising approaches of the SMP in order to achieve better accessibility.

Table 4. 5

SMP Recruitment Approaches

<table>
<thead>
<tr>
<th>Invariant Constituents</th>
<th># of participants to offer this experience*</th>
<th>% frequency of this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend</td>
<td>4</td>
<td>24%</td>
</tr>
<tr>
<td>Guidance counsellor</td>
<td>4</td>
<td>24%</td>
</tr>
<tr>
<td>Teacher</td>
<td>4</td>
<td>24%</td>
</tr>
<tr>
<td>Announcement</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>University program</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>Sibling</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>School administrator</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>Parent</td>
<td>1</td>
<td>6%</td>
</tr>
</tbody>
</table>

* Total number of participants (n) = 17
Note. One respondent reported two answers in this thematic category.

Appropriate candidate selection issues. Ms. Poly, a teacher/liaison is seeing that there is a decrease in the number of Black students entering the program:

What happens is the students submit their applications to the board. The boards go through them, they send on a certain number to each of the faculties. The faculties then whittle that number down to a manageable number that can be interviewed within 1 day. What I found is that we are seeing a decrease in the number of Black students over all that are coming
in to be interviewed so to even make it to the interview stage [is challenging].

Ms. Poly also observed that there is a growing pressure from a number of groups who are suggesting that it is discrimination to only recruit Aboriginals and Blacks:

They [SMP administrators] are taking the pressure from a number of groups that want into the program and yet keep saying you’re being discriminatory by not allowing others. But they [SMP administrators] are doing what needs to be done, in that Black and Aboriginal students are underrepresented in med school and in the sciences generally and I believe that we need to give students this opportunity. ... I wish the other faculties would look at it also ... We are seeing an increase in the number of Spanish speaking students that are coming from Central and South America. That might become the target group a little later on or within a year or two. That’s fine, but really look at who needs the opportunity most.

And then there is the problem of identification with regard to the Aboriginal groups as pointed out by Ms. Connelly:

Toronto has a large Aboriginal population ... but they are very difficult to identify within a school setting and I think that that’s a reflection of us ... students aren’t comfortable in [self-]identifying ... who they really are. That’s where we have a difficult time in finding out who the students are, so that we can direct them to the program.

Ms. Connelly also noted that a better job needs to be done in identifying the most appropriate candidates:

Well this is one of the things that is very difficult. We have to ask kids to self-identify and it's very difficult ... unless people self-identify, we don't
know what the issue is with them and it seems to me that with the First Nations [Aboriginals], we need to do a much better job.

The program is working on targeting the best candidate even within the selected ethnoracial groups but it is not without challenges as Ms. Poly notes:

I think one of the best things that we’ve done recently is to put in the question about what do your parents do, have they gone to university? The reason is, if they have, you have a leg up on somebody whose parents haven’t. If your parents are lawyers, then you don’t need this program. If your parents are doctors, you don’t need this program. It’s for the student whose parent works, ... one of the parents is a TTC driver for instance. The kid is working really hard but doesn’t have anybody to help him or her navigate the system or to say to them this is what you need to do.

Mr. Charles puts it this way:

If you don’t have a mark of 90 we won’t even talk to you that is the way we were framing it. That if a kid had 51% but from teachers we felt this kid would best benefit, we consider that student.

I think most of the participants would agree with Mr. Dale, a teacher/liaison that low marks and low levels of motivation would not be a good combination for success in the program:

No, because just low marks and unmotivated, they wouldn’t even ... I don’t see their application. If you have a person that has low marks and not motivated, that’s a person that says hey, I can’t be bothered with that and I in my 4 years, I haven’t seen an application that would fit that profile.
Research Question 2: Based on the lived experiences of the participants, what are the factors contributing to the success (or otherwise) of the program?

The Enablement Factors.

Enablement factor is defined in this study as a cluster of agents or elements that make it possible (or easier) for mentees to change their behavior or their environment pertaining to academic (science) achievement and career (medicine/health sciences) decision making. Enablement factor—derived from Bandura’s (1986) sociocognitive theory—include resources, conditions of living, sociocultural supports, and skills that facilitate a behavior's occurrence (Bandura, 1986, 1997b). Enablement is proactive rather than reactive, the process equips individuals with the personal resources and skills to select and structure their environments in ways that set a successful course for their lives (Bandura, 1999). The following enablement factors were culled from the interview data.

Factor 1: Mentees feel empowered by interacting with mentors of similar backgrounds. The majority of mentees (89%) noted that interaction with their mentors was very important (see Table 4.6). Also, it was generally accepted (60% of the participants) that there was a definite advantage to having high school students exposed to minorities in the medical field. Nick is a past mentee who saw the program as:

A wonderful way to introduce young people [to the medical field], some of whom would never have an opportunity like that to health science careers. Not only health science careers but to meet Black and other minorities who are in those professions and fields.
Table 4.6

Factors that Develop Program Competencies

<table>
<thead>
<tr>
<th>Invariant constituents</th>
<th># of participants to offer this experience*</th>
<th>% of participants to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction between students and mentors of similar background</td>
<td>11</td>
<td>61%</td>
</tr>
<tr>
<td>Proper entrance age</td>
<td>12</td>
<td>67%</td>
</tr>
<tr>
<td>Hands-on interaction w/medical profession</td>
<td>16</td>
<td>89%</td>
</tr>
</tbody>
</table>

*Total number of participant (n) = 18

Dr. Hull a mentor also had this to say regarding the enabling power of role models or mentors who share similar backgrounds with their protégés:

Other groups you ... the Chinese, the East Indians, sort of the Jewish kids and these people they have problems. All ethnic groups have their problems just like any others but yet consistently you find they are represented at the high educational levels, and I have one conclusion I came to is that again, they have really strong role models. I don’t see any strong cultural background and support and think that’s something that we tend to be lacking in the Black communities. If by being a mentor I can do that in some little way then I think I should.

From the above quotes, the idea that can be grasped is that the SMP is addressing the need for empowerment of minoritized students during their educational journey. Having exposure to people who look like them or have come from a similar background can have a profound effect. Another past mentee, Angela, stated:
It wasn't every day that I came across a Black student in the sciences never mind a Black female student in the sciences.

Such a context makes the next part of her observation even more revealing:

It just gave me an opportunity to say there are other people in the same shoes as me and I can do this.

To further iterate this point another former mentee, Sandra, explained that two features of the program that were extremely relevant were:

Just seeing doctors who look like me and the other one was being with other students who wanted to be a doctor just like I did.

Not only is the reinforcement from the presence of mentors important to the underrepresented minorities being served by the SMP, but it seems that being in a place where other people of a similar peer group are exposed to like-minded individuals, who have similar career and academic goals is a positive thing as well. All of these narratives indicate that one of the central pieces addressed by the SMP is the exposure to successful adults in careers similar to those the students want to pursue. From one mentor’s perspective this is echoed:

I think that concept is excellent in a sense that we are dealing with a lot of young ethnic kids who probably have no idea to the fact that we have quite a few people, especially people of colour who are of certain professions in the city.

There was a perception from racialized individuals in the various medical professions that it is important for high school students to be exposed to such professions. As Dr. Salk stated:
Considering medicine as an option and as such it’s a good exposure because most of these [racialized] kids have this sort of colour vision of professionals within our society [that Aboriginals or Blacks are not in the field of medicine].

A lot can be missed or misinterpreted when a young person does not see himself or herself represented among those professions. Perhaps Dr. Hull’s words could sum up the idea when he stated:

It [the SMP] gives them a different angle of opinion, different angle of exposure.

and that further:

It brings in the fact that it is not only the Anglo-Saxons ... can get into this desirable career.

When talking about the mentor’s role Dr. Holmes mentioned one of the advantages to having minority mentors:

Black students in these areas could sort of feel that they can be successful in this area [medicine] as well and they may not feel that they are limited to one dimensional areas of success.

However, there are several things to be taken into account. One of these things is illustrated by one of the mentors, Dr. Jamlin, who remembered her own time as a mentee in her native homeland. She stated that her mentors were:

Very dissimilar to me—different background, beliefs, religions, family structure, the whole nine yards.

She said that was not a detriment and that it is always important to remember, as far as mentoring is concerned:
The most important thing is that a mentor is someone who is prepared to be non-judgmental and invest the energy to search for how to get their mentee to achieve their best.

Another consideration Dr. Jamlin cautioned about is diversity within groups:

There is a lot of diversity in the group. In fact, sometimes the only thing they have in common is that they are Black. Therefore, to change the curriculum or education would be impossible to meet all those groups. It still needs common things.

This is something important to remember. The fact that the colour of the skin is the same does not mean the background is the same. Some people are from Western Africa, while others are from South America and the Caribbean such as Dominica, Jamaica, and Trinidad. There is a whole host of experiences that need to be taken into consideration and sometimes reducing everyone to skin color can be problematic. As Dr. Jamlin points out, there still needs to be common ground and race is not the only one.

**Factor 2: Connection and belonging.** It was not merely the experience of the mentee being in the room with the mentor while surgery was occurring, or when hearing a patient describe a medical problem but also the genuine relational connection with the physician mentor that allow for lasting impressions to be made of the medical profession. As Greg said about the mentors:

[They] sit you down and speak with you and I found that incredibly valuable.

Another past mentee, Karl, had similar feelings when he recalled:

They [mentors] talk to you on your level, they made things so you could understand them and they talked about their lives you know, how their lives were affected.
Aruna, a unique past mentee—who also assisted as a mentor and student coordinator, was already a U of T student when she participated in the program—did not have different recollections when it came to the deep relational interaction the students had with the mentors:

These very successful individuals told their very human stories and the students were able to relate to them.

This connection and belonging factor is incredibly important in getting students to understand that the goals that they are being encouraged to pursue are not outside their grasp.

**Factor 3: Engagement due to hands-on/first hand experience.** Another factor that I considered to be responsible for the success of the SMP was the opportunity for students to be actively exposed to the day-to-day lives of physicians, other health care professionals, and scientists. Almost all mentees (89%) spoke of how important hands-on interaction was for connecting in a meaningful way to the program and with the mentors. The interaction could take the form of a routine patient visit, sitting with an orthodontist while doing a root canal, participating in the dissection of a cadaver with an anatomy professor, or watching emergency surgery performed. These activities allowed the students to be dynamically engaged in the actual profession that they are interested in, for example, medicine. As an important part of her experience, Winsome remembered:

Actually visiting the patients one on one with the physician.

Donald also reported a similar sentiment when he said:

They took their time out of their busy schedule to show me. I mean like, for example, I walked right into surgery. The doctor was like, here come in watch.
This type of one-on-one interaction with the given profession is a strong part of what made so many of the mentees experiences so vivid and lasting. Kate remembered:

What I really liked about the SMP was actually going to the hospitals and you know sitting or standing in on those surgeries.

To further illustrate, former mentee Greg who is now an ophthalmologist noted:

We were allowed to job shadow them and many of them would take the time you know particularly you know at the lunch time and so on to just sit you down and speak with you and I found that incredibly valuable.

The mentors themselves are a visible reinforcement that those goals are not just dreams, but tangible and very possible goals. Donald, a former mentee noted:

Teacher and student is important but at the same time though, there has to be I mean, there has to be some form of communication level in a sense between the two.

This is incredibly important to note that the relationship between the mentor and his or her mentee is not supposed to be the same as teacher and student. In the opinion of the mentees, a teacher/student relationship had less feedback, less personal connection, and less balance. However, in a mentor/mentee relationship, as Donald noted:

The field becomes more balanced. There is more of a sense of two-way communication between the mentor and mentee.

Nick, a past mentee, noted that although there can be problems there was always an effort to find similar ground or place where the two could meet:

Even though some people [mentee and mentor] didn’t maybe at first get along together, they try to see, try and find some common ground, trying to work well together.
Sandra, a former mentee, further noted that mentors possessed an incredible amount of wisdom, but are supposed to feel free enough to allow the mentee to make his or her own decision and that a mentor is:

   Someone who listens to their mentee with an open mind, doesn’t judge their mentee, offers like different options so that the mentee can make an informed decision.

To look at this from another angle, experiences are presented from a current mentee who have a much fresher, yet no less similar view as to how the mentorship program has been invaluable to them already. Kisha stated:

   The mentor Dr. Salk, even though he had a lot to do, he took his time to take out like different books and show me what what’s and what he had done and he showed me a lot himself.

The act of taking out some time from a busy day already has a profoundly apparent impact on the students. The students are certainly aware of how busy being a physician or surgeon is and that added extra bit to interact significantly with the student is incredibly important to helping them succeed.

   From the view of a mentor, the scene remains remarkably the same. When asked about her mentors, Dr. Jamlin replied:

   They were very dissimilar to me—different background, beliefs, religions, family structure, the whole nine yards.

This dissimilarity does not detract from her overall sentiments on mentors, which she describes as follows,

   For me the most important thing is that a mentor is someone who is prepared to be non-judgmental and invest the energy right to search for how to get their mentee to achieve their best.
To perhaps offer one more insight that sums up the impact that this particular mentorship program had, Karl asserted:

This whole mentorship program will stay with me until the day I am dead; so in that sense, the way I see mentoring is that they did their job and what they, the program, and what they did for me will stay with me.

**Factor 4: Acceptance and Identity.** Mentees (61%) commented on the relevance of having interaction with students and mentors with similar backgrounds as their own, noting this as a motivating force. Compared to their school environment however, of the 5 current mentees, 40% noted there was a visible lack of minority teachers in their schools (see Table 4.7). One mentee, Angel, noted what was perceived to be a lack of interest in school as well as a lack of minority teachers in one single statement:

You can’t really relate with the teacher. We don’t learn stuff about our Black history and stuff and it’s mostly about the British.

**Table 4. 7**

**Current Mentee's Perceptions of High School**

<table>
<thead>
<tr>
<th>Invariant constituents</th>
<th># of participants to offer this experience</th>
<th>% current mentees to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority peers don’t care about school</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Minority peers are not interested in science</td>
<td>3</td>
<td>60%</td>
</tr>
<tr>
<td>Lack of minority teachers</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Actively involved in extra-curriculars</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Lack of attention from teachers</td>
<td>2</td>
<td>40%</td>
</tr>
</tbody>
</table>

* n = 5
This is already a problem that the students have little way to relate to the teacher or the material. Angel’s answer to the problem is:

Stuff like that and a lot of people find history boring ... coming from another Black person, then I think people would take it more seriously.

Interacting with someone of the same background would not only make the material easier to relate to, there may be the added benefit of relating to the teacher as well. There is clearly a need for support for minoritized students who do not often have positive reinforcement as far as their ethnicity is concerned. Stella, a current mentee, had strong opinions about this subject:

White teachers are like here’s your work, if you want to talk to me come ask me for help and there you go, but the Black teachers I notice all of them especially my last Black teachers they were like you guys need to work.

When asked what she felt that meant she responded that:

He [the Black teacher] is taking his time out to stay with us and talk to us and encourage so I think it means a lot.

The accepting and positive SMP environment compared to the intolerant and sometimes toxic school atmosphere, that some mentees reported was of interest. Angel, a current mentee for example, was quite passionate and outspoken in her comparison:

I will never forget the positive energy that was there [SMP]. [Be]cause like at school you really feel tension sometimes between friends and stuff but here [SMP] it was like everyone was just nice and it was just all positive. There was not bad talking about people and anything like that and a lot of the older students would talk to you and were really nice.
Angel went on to relate an incident surrounding multicultural days at her school. Even though the intent of the activity was supposedly to celebrate the culture of minoritized students—and she thought that it was a good idea—the impact was damming and had the opposite effect. This would seem to typify the negative and pervasive atmosphere that Black students have to deal with on a daily basis, with little or no recourse for support or understanding of their difficult and lonely academic journey:

Well the teacher that actually talked about it was the physics teacher. He kept saying that Chinese and Russians are really good at math. He didn’t touch on the fact that sometimes being Black you have to work harder. Sometimes teacher should actually talk about something like that.

Angel also said that:

The only time he [the physics teacher] talked about Blacks or Africa or anything was when they were colonized and stuff like that.

Unfortunately, the situation for these minoritized students was not limited to science alone, but their spirits are broken in other content areas as well:

It made me feel bad because I mean I know there is a lot of good Caribbean and African art. Well look, Africans are more into sculpturing but I know there are paintings that were done by Africans too and I would like to see some more of those.

It would appear that the students deal with the constant lack of acceptance and validation of their identity and consequently they become disillusioned and apathetic:

I didn’t really think any more about it because I am so used to hearing more about English and Germany artists and stuff.

Dr. Holmes, a mentor sums up the acceptance and identity issues in this way:
What I find is that Black kids tend to have some difficulties at particular levels and I think for the most part, it’s because the teachers are no different from anyone else in the society. They are subjected to the same images, the same perceptions as the society in general and basically you know the way the society thinks about Black people. The teachers have that opinion as well. So you find for the most part, you would think they [teachers] would be able to transcend those differences in their profession and encourage the children all the time but from time to time most Black kids will tell you that they had some kind of differential treatment in the system. ... You have to show a presence and if you show a presence, most times you will find that your kids may even be treated differently and the impact that a teacher has on a kid cannot be underestimated. I mean that could determine where the kid goes.

**Factor 5: Futures orientation to learning.** The SMP allowed students the opportunity to place their science learning experience within the context of a career in medicine or related professions. Winsome, a past mentee had this to say:

> I think what it [SMP] had done for me is to give me a sense of working to be an extension of what you want to do so if you were going to choose medicine as your work or your career, make sure that its something that you really are going to get a lot of joy or pleasure out of.

She also noted that:

> There are a lot of students who went through the program and in the end realized medicine wasn’t for them. But I think that’s also a good thing too, because otherwise they would have thought medicine was what they wanted, gone through the expensive and long process of becoming a doctor and then realize that they don’t want to do that any more.

The exposure gave students a realistic window through which to view the medical profession, at this stage—perhaps too early—some students may decide it is not for them.
As Winsome points out however, the program is still beneficial for those mentees since it spares them the long and difficult journey of going through medical school just to realize it is not a career for them. As well, they still acquire the many other benefits that the SMP offers, this is directly borne out by Mr. Alton’s comments regarding a past mentee who did not pursue medicine:

I can think of one young man who did not go into medicine, I think he went into architecture. He went to Waterloo but he always came back and said, “look what I gained from this program, organization, discipline, self-worth—I keep going back to that—you’re gonna feel good about yourself. ... if I needed help, I know where I could turn for help and I didn’t feel alone.”

Clive is also another past mentee who did not pursue medicine but the rich integrated futures/career orientation of the SMP allowed him the opportunity to select a career that met his needs:

I mean what happened to me was I started out and I didn’t have any idea what I was gonna do career-wise. I didn’t know where I was gonna go or what I was gonna do afterwards. ... I sort of, I think I got exposed to a lot of different people, different types of things that people were doing and it sort of helped me realize that hey, medicine isn’t just about being a doctor or a surgeon but it was a lot more than that. I guess I sort of got involved with a lot of the computer software development end of things and that’s where I was for quite a while. ... Well I spent most of my time working under Dr. --- at U of T. ... is a great guy so he sort of taught me a lot about how to solve computer related problems and I sort of followed his style in trying to solve computer problems. ... He taught me how to learn through going through on-line help menus. ... something I still do today at work. He taught me all kinds of important things that I think are still really important to me today even.
Clive went on to say:

I mean I work as a programmer now at a government research institution here and yet I don’t think without the SMP I would have been able to do something like that. ... I work as a computer programmer at a government research institute. We’re putting together a bio-security software package that’s gonna be used by a whole bunch of different departments.

From her perspective as a current mentee who became very interested in medicine, specifically obstetrics and gynaecology during her mentorship, Angel had this to say about the motivating career aspiration impact that the program could have on her peers:

I think they [Angel’s non-SMP peers] would like to have—actually see what it is they could do—like what it is that is out there for them if they did work hard in school you know. They actually have an example of where they could be in a couple of years so I think it would be a useful program to put into schools.

Angel went on to say how important it was to walk, talk and share critical bonding moments with her mentor and how that solidified her decision to pursue medicine:

Going back to his office and following him to a hospital and seeing what it is he does on a regular day.

Regarding the invaluable exposure through the SMP, to navigate the medical career labyrinth, from her perspective as a former mentee and now completing medical school, Winsome has this suggestion for mentors:

Just take an interest in the mentee and to give them as much advice and you know, letting the student know a lot about their [mentors] own experiences and what it was like for them going to university and applying to medical school. ... I think once that happens, the student will have an understanding of o.k., I know this person did it this way, and this person
did it that way and so they get a sense of is this is for me and there are lots of ways that they can get to the eventual goal.

**Factor 6: SMP is Grade appropriate intervention.** Sixty-seven percent of all participants in the study felt that the best time for a student to enter the SMP and to take advantage of the opportunities was late high school with most preferring between Grade 11 and Grade 12. However this percentage was higher (92%) for the past mentees, whereas none of the current mentees mentioned this constituent. Winsome, a former mentee gave this reasoning for the entrance time:

I think definitely [Grade] 11 or [Grade] 12 is really good because they still have time to feel the impact of the program in high school.

This was the consensus from many in the study. At Grade 11 or Grade 12, many students are seriously considering the next step in their life both academically and career-wise. Another participant, Jerome, put it slightly differently:

I think it’s a stage in which you’re still I think most people at that age haven’t decided what they want in terms of their careers.

Late high school is still a formative time for students and many are looking for a good idea of what to pursue next. Jerome went on to say:

Secondly, I think that it’s still an age where you’re old enough to make a decision on what career path you would like to follow and to make steps to follow that.

This is as opposed to say a student who had just entered high school. Angela felt:

I think Grade 11 was perfect, I think that is the perfect time for students to come in.

To her the reason why this was such a good time was because:
Grades 9 and 10, I think, students are adjusting to high school, they are having a hard time, a hard enough time trying to figure out what classes they are gonna take in high school.

When you are that age those adult responsibilities seem too far away. It is mainly a teenager’s responsibility in early high school to navigate through ‘shallow waters’ (e.g., choosing classes, making new friends), but by the time a student gets to be late teenage years the real world is looming large and the waters are getting deeper. An illustrative caveat was put forth by Winsome:

While it’s a good thing to attract younger students to come to the program because it does allow them time to mentally and academically prepare for university, you run the risk of getting them being too young if they don’t have a sense of what the program can offer them.

That is another important thing to remember. Younger students may not have the life experiences that would inform them of how important an opportunity SMP could be in life. One of the teachers/liaisons, Mr. Dale, added his own opinion, which supports many of the others, by saying:

A lot of them in Grade 10, they don’t know what they wanna do.

To add some more perspective from past mentees, consider what Karl (who entered the program during his penultimate year of high school) had to say about his high school experience up to that point:

Now I have to study cause up until [the start of ]Grade 10, to the end of Grade 10, I could go through all my courses without even studying.
Academically, things are not as challenging in Grades 9 and 10 and that would leave students who entered the SMP at such a young age at a serious disadvantage. Karl went on to say:

Once I hit Grade 11, I have to study [be]cause if I don’t study I won’t pass.

This is further indication that taking teenagers that are too young may not be effective. As Donald, another former mentee under the old Ontario Curriculum, which included an extra year of OAC (Ontario Academic Credit) at the end, puts it:

Grade 11, you’re basically comfortable. By the time you are in your higher years [Grade 12 and OAC] in high school, you start thinking of your future.

There is less thought that a student will somehow magically remain in high school forever. All three of the quotes illustrate that it is during the senior division of high school that the concept of career becomes practical and meaningful. To consider other practical matters a past mentee, Sandra, suggests:

It would have to be the year before because you go back to school to apply for courses that you need for university so it would have to be at least the year before.

For instance, if a student suddenly realized after his or her Grade 12 that he or she wanted to pursue science or specifically medicine at the post-secondary level there may have to be a whole extra year spent acquiring the prerequisites. A current mentee had a similar understanding when it was noted:

Grade 9 doesn’t think about their future until probably when they reach in Grade 12 and by that time when they are in Grade 12, it’s gonna be too late because they are gonna have to do the thing all over again.
However, for a student that has been exposed to something like the SMP while he or she still has time left in school, it is not too difficult to change goals and work towards them with diligence. Another former mentee, Greg, cautioned that the best time to enter the program was:

probably the last two years of high school and I say that because this program you are given a lot of responsibility.

As a support to Greg’s statement, consider what one of the mentors, Dr. Hull, had to say about one of the more difficult parts of the program for him:

When you are dealing with high school kids therefore I think at times in the past few years, you have to have some voice control, noise control and trying to get their attention.

He is not saying that the students are difficult to deal with, merely high school students. When placed in context of the statement by Greg regarding entrance to the SMP, it seems fitting that the later in students’ high school career the better, but not at the end. It is a time where teens tend to be more responsible and have the ability to take on more responsibility when given it. Dr. Salk, another mentor also notes:

I think the ideal time is when they are just a year or so before they decide as to what they want to do with their lives in university. You’re looking at Grade 11 and Grade 12.

This appears to be the consensus for timing to enter the program. This timing is also consistent with Dr. Holmes’ observation:

That especially somewhere around Grade 11, I don’t know what happens with Black boys especially, somehow I’ve seen average kids go to stupid kids, I’ve seen brilliant kids go to average kids and I have to come to the conclusion that it has to do with maybe expectations, the negative things
that the kids are getting all the time – cause you don’t just go from bright to stupid and somehow move from your level of achievement to total disinterest.

Having the SMP at this very critical developmental stage may just be the intervention that is needed to reverse the impact of many years of negative schooling encounters experienced by minoritized students.

Summary

Chapter 4 presents the findings from the phenomenological analysis of the semi-structured interviews of a purposive sample of 32 participants of the SMP, which includes former mentees, current mentees, mentors, teachers/liaisons, and administrators. Chapter 4 provides the demographics of the study participants, articulates the data collection process, describes the Moustakas modified van Kaam phenomenological method that is employed to analyze the data, and arrays the interview findings. The interviews were conducted, transcribed, and analyzed through a process of reduction and elimination to cluster and thematize the invariant constituents into thematic categories.

The transcribed interviews were analyzed and used to create summarized individual structural descriptions of the lived experiences of the research participants. Instead of representing the individual textural descriptions in a distinct section, they were integrated into the textural-structural descriptions in the interest of representing the information in a concise way. Textural-structural descriptions are created to describe how the participants perceive their experiences with regard to the thematic categories found during the phenomenological analysis. The final step of the Moustakas modified van Kaam method was the creation of the composite textural-structural descriptions. The
composite descriptions provided a combined analysis of the meaning and essence of the various SMP participants’ perceptions, thoughts, and feelings. In response to the research questions, evidence, counterevidence, and factors responsible for the program’s level of success were presented. Chapter 5 provides a discussion of the findings.
CHAPTER FIVE: DISCUSSION

This qualitative phenomenological study explored the impact of the University of Toronto Faculty of Medicine Summer Mentorship Program (SMP) on the lives of minoritized students particularly Aboriginals and Blacks. Participants included past and current mentees, mentors, teachers/counsellors/liaisons, and administrators of the program. The responses, opinions, and ideas of the interviewees provided captured the experiences and feelings of those involved with the SMP. Chapter 4 which utilized the Moustakas (1994) modified van Kaam (1966) method revealed a number of themes emerging from the data. Based on the characteristics and relationship of these themes, I have conceptualized a cluster of four metathemes that comprise my proposal for a Mentoring Oriented Teaching and Learning Strategy (MOTALS) that is discussed in this chapter.

Revisiting the Findings

Research Question 1: Based on the lived experiences of the participants, to what extent is the program successful?

Chapter 4 reports a view of the program’s success by assessing the evidence as revealed by the interview data. For convenience these findings are revisited and summarized here. The success evidence indicators include:

1. Testimony of teachers/liaisons: All five teacher/liaison participants felt that the program was effective in improving competencies such as increased confidence, more academic focus, self-belief, and determination. Two out of 5 of the teachers/liaisons thought that the SMP had created an effective network for the participants to utilize as they continued on toward university. The
teachers/liaisons have a unique historical perspective with respect to the mentees with whom they are acquainted both academically and otherwise. Because the teachers/liaisons are familiar with the mentees prior to entry into the program, they are able to see the immediate results of the SMP when the students return to school for their penultimate or final Grade. The teachers/liaisons are able not only to authentically assess and evaluate the improvement of the mentees against themselves but also to assess and evaluate comparatively with a peer group of students who did not attend the program.

2. Contributions to mentees’ academic work and career goals: Three-quarters (76%) of all the mentees responded that their work habits and desire to concentrate on academics was heightened considerably by enrolment in the SMP. Students were exposed not only to different work and study habits, but also a different environment for such habits, mainly the university setting.

3. Contributions to mentees’ confidence: Just under half of all the participants (40%) comments on the role of the SMP in building confidence. All five teachers/liaisons corroborated the mentees’ responses by reporting increased confidence of the protégés after completing the SMP.

The success evidence indicators were counterbalanced by the following issues, some of which were not directly controllable by the SMP but nonetheless negatively impacted its success:

1. Communication issues: One of the biggest complaints from the mentors was the lack of feedback for the work that they do and there was a lack of update
on their protégés’ long-term progress. As well, there was a generalized lack of information available to prospective mentees in the schools and community. It should be noted however, that more extensive advertising in the community would perhaps mean more frustration for potential mentees due to limited program capacity.

2. Budgetary and financial issues: Beyond its direct control, the SMP face a precarious future due to lack of institutional stability and sustainable core funding from government or otherwise. There are also socioeconomic challenges faced by racialized families who need to access the program.

3. Program accessibility issues: The degree to which the SMP was accessible to the target group was to some extent counter-effective and appears to be needy of some attention. This issue was likely associated with inadequate advertising and promotion of the program. There was a wide disparity in the data regarding how students learn about the program. However, it was clear that there was a need to systematize recruitment and advertising approaches of the SMP in order to achieve better accessibility.

4. Candidate selection issues: It was observed that there is a growing pressure from a number of groups who are suggesting that it is discrimination to only recruit Aboriginales and Blacks. Regarding Aboriginales, there are significant issues surrounding identification. Added to this mix, is the challenge of targeting the best candidate even within the selected ethnoracial groups likely moving to selection based on socioeconomic status.
Research Question 2: Based on the Lived Experiences of the Participants, What are the Factors Contributing to the Success (or Otherwise) of the Program?

The analysis of the data in chapter 4, revealed 5 enablement factors that contribute to the success of the program:

1. Factor 1 Empowerment: The majority of participants (89%) noted that interaction with their mentors of similar background was very important and empowering. Also, it was generally accepted (60% of the participants) that there was a definite advantage to having high school students exposed to minorities in the medical field.

2. Factor 2 Connection and belonging: Mentees developed a genuine relational—personal and professional—connection with their physician mentors that allowed for lasting impressions to be made of the medical profession. This factor was important in getting students to understand that the goals that they were being encouraged to pursue were not outside their grasp.

3. Factor 3 Engagement: Almost all mentees (89%) spoke of how important hands-on interaction was for engaging in the program and with the mentors. The experiential learning activity could take the form of a routine patient visit, sitting with an orthodontist while doing a root canal, participating in the dissection of a cadaver with an anatomy professor, or watching emergency surgery performed. These activities allowed the students to be dynamically engaged in the actual profession that they were interested in.

4. Factor 4 Acceptance and identity: By interacting with mentors of similar backgrounds, mentees experienced a sense of acceptance and positive identity when compared to their generally negative school experience. It would appear
that minoritized students deal with the constant lack of acceptance and validation of their identity by becoming disillusioned and apathetic especially with respect to career acquisition.

5. Factor 5 Futures orientation: The SMP allowed students the opportunity to place their science learning experience within the context of a career. As opposed to learning science in a career vacuum, the SMP gave students a realistic window through which to view the medical and related professions.

6. Factor 6 Grade appropriateness: Sixty-seven percent of all participants in the study felt that the best time for a student to enter the SMP and to take advantage of the opportunities was late high school with most preferring between Grade 11 and Grade 12. However this percentage was higher (92%) for the past mentees, whereas none of the current mentees mentioned this constituent.

Discussion

One of the overwhelming problems that face underrepresented minorities is that academic success is intricately associated with success in life (Horvat & O'connor, 2006). A racial disequilibrium exists in the academic arena, which can cause severe difficulties for minoritized students who are attempting to achieve upward social mobility (Howard, 2006; Kozol, 2005, 2006; Ornstein, 2000, 2006). Aboriginal and Black students strive to acquire social networks in order to eventually overcome personal discomforts resulting from social discrimination (Lareau & Horvat, 1999). This disequilibrium in school settings can lead to disenablers such as a lack of belief, disempowerment, despair, and a sense of resignation in students, many of whom see little value in an education system
that is seemingly stacked against them (Lewis, 1992; McMurtry & Curling, 2008). Programs such as the SMP provided these minorities with ways to acquire social mobility through the intervention of creating social networks and engaging learning opportunities through mentoring.

The SMP recognized the gross under-representation of Aboriginals and Blacks in the Faculty of Medicine and other health sciences careers and decided to do something about the disparity by developing a mentorship program. This research attempts to shed light on the essences of mentoring through examining lived experiences of the participants in the mentoring program. Chapter 4 reports a balanced view of the program by assessing both pro- and counter-evidence as revealed by the interview data. Salient findings on the success of the programs were the perceived increased confidence, positive outlook, a sense of empowerment, commitment to success, and a positive sense of self without letting others define one’s identity. Competencies that were addressed included the mentee taking on responsibility, becoming active and engaged in school programs, and being aware of the academic and career choices that are available to the mentees. These positives however, were balanced by some communication deficiencies experienced by some participants especially mentors. The core objective of the SMP is to counter some of the systemic racial and ethnic barriers responsible for excluding minoritized groups from careers in medicine and medical sciences. In an effort to fulfill its noble objectives, there was also evidence to suggest that the program struggled with budgetary and financial bottlenecks as well as advertising and recruitment difficulties.

Research has shown that, although out-and-out social discrimination may not be at work, the distinct lack of underrepresented minorities, can be attributed to the idea that
there are certain preconceived notions of what a “true” scientist (or physician in this case) looks like or acts like (Tobias, 1994). Tobias went on to implicate that there then becomes a preference for certain types of people to fill certain professions or fields. This in turn can lead to a self-fulfilling prophecy. Many of the factors and competencies, such as confidence, empowerment, and positive outlook are lacking in underrepresented minorities because of prevailing social notions that certain people “fit” into certain professions or disciplines (Downey et al., 2005). Mentee participants in this study revealed the perceptions that minority students do not care about school (80%) and that their minority peers are specifically not interested in science (60%). This finding is corroborated by previous research and is certainly symptomatic of negative stereotype threat discussed in my literature review in chapter 2 (Downey et al., 2005; Sanchez & Colon, 2005). At this academic stage, adolescents are at increased risk for declining motivation, poorer self-perceptions, greater susceptibility to conforming to peers’ negative influences and proneness to problem behaviours and therefore, are more likely to benefit from the positive buffering effect of ethnic identity due to mentoring (Gutsell & Inzlicht (in press); Morisano, Hirsh, Peterson, Pihl, & Shore, 2010; Shelton et al., 2005). Also, it is important to furnish them with the positive effects of a sense of history, heritage, and continuity (Alvarez, 1994; Sanchez, 2005).

Throughout the interviews, participants indicated that the SMP helped to enable a more positive outcome of many of the mentioned competencies and factors. Participants noted that their interest in science increased, that they had a desire to take on leadership roles, felt a sense of accomplishment about their time in the program, as well as increased awareness and dedication to their subsequent academic and career choices. In addition,
teacher/liaisons noted increased confidence (100%), desire to concentrate on academics (40%), desire to enter medicine (40%), and goal oriented motivation (40%) among the student participants (see Tables 4.2 to 4.7).

**Enablement Factors and the Multicultural Dynamics of School Environment**

According to Joshee and Johnson (2008), policies that support the integration of immigrants into the Canadian society would seem a logical direction for Canada and its already firm position of integrating multiculturalism at the Federal level. As noted in the literature review, in addition to several current structures in place to promote multiculturalism, Boone and Chan (2005) suggested that more efforts be placed on attempting a dialogue between students, family, and teachers. This would help to create a collaborative environment whereby the students are introduced to the narratives of others in order to more easily achieve “interpretive competence” in personal and institutional senses.

The enablement factors identified in this study are significantly important in understanding the multicultural dynamics in the school environment particularly its effect on the academic performance of minoritized students (Delpit & Dowdy, 2002; Goncu, 1999; Howard, 2006; Irvine, 1990; OECD, 2005a). Further, results of the study indicated that the participants of the study acknowledged the growing sense of multiculturalism in Canadian society. They also noted repeatedly the need for more effort to be placed on actively engaging the difficult issues that come along with such growth. Many participants had experiences that indicated that within the multicultural milieu of Canadian culture, certain minorities continue to be underrepresented. In particular,
mentor participants (60%) stressed the importance of exposure of minority high school students to the medical field.

Among underrepresented students, there is a general lack of confidence, perception that the career opportunities are not as plentiful, and academic options are not apparent. The foregoing are some of the salient issues that the SMP seeks to address in communities around the Greater Toronto Area. The main thrust of the SMP is to expose students, who are from Aboriginal and Black backgrounds, to the field of medicine and the educational and professional opportunities medicine and medical science can provide. By doing so, the program seeks to further the goals of multiculturalism already promoted by the Federal government (Joshee, 2009; Joshee & Johnson, 2007; Joshee & Johnson, 2008).

The SMP specific focus is on exposing Black and Aboriginal students to the field of medicine and medical sciences. The SMP began before the 2006 PISA study, which ranked Canada as third among 15 year-old OECD countries for science achievement which suggests excellent science teaching and learning at the aggregate level (Educational Quality and Accountability Office (EQAO), 2008; OECD, 2009a). As outlined in the literature review however, there is still a significant gap between the achievement of some minoritized students and their majority counterparts.

The problem of the gap can be addressed through empowerment by exposing students to various environments where the participants can interact directly with mentors. In this study concerning the SMP, many students indicated how important it was to interact with the mentors of the project. This was important for a number of reasons. One reason was the chance for the participants to interact with mentors of similar
backgrounds as noted by 61% of the participants. This benefit is corroborated by prior and current research which indicated the need for supportive individuals of common ethnoracial backgrounds (Gibson, 2005; Gutsell & Inzlicht, 2010; Ogbu, 1990a).

Participating in the SMP was a way for the mentees to realize that focusing on academic choices can result in gaining entry to a career that was not previously on their radar screen. According to Lareau and Horvat (1999), one of the primary ways to acquire social mobility, which is a distinct concern for underrepresented minorities, is to create social networks through mentoring.

It is important to note however, that different groups may have culture-specific conceptions of mentoring that will quite likely impact protégés’ responses to the mentoring process. While Aborigine and non-Aborigine mentoring approaches share a strong emphasis on the need for children and youth to have strong role models when growing up, there are also some significant differences that we must take into account when considering the mentoring of Aborigines for programs such as the SMP. Non-Aborigine mentoring is more focused on mentor/mentee pair and often involves a one-on-one structure, whereas in some Aboriginal communities learning and child rearing generally takes place in a communal setting where family connections are valued. Also, in the Aborigine context the atmosphere is more informal and reciprocal—less distinction between mentor and mentee. Further, all mentoring-like activities are closely connected to the surrounding community or at least linked to Aborigine culture and values (Klinck et al, 2005).
Engagement

Many mentees indicated that the most memorable part of the SMP was actively engaging in fieldwork with the mentors. Almost all mentees (89%) spoke of how important hands-on interaction was for engaging in the program and with the mentors. This could have been watching a surgery, visiting an orthodontist, or helping a doctor during a routine patient interview. By being exposed, first-hand, to the environment of the medical profession students felt they could take on increased responsibility. This anecdotal evidence from the mentee participants of the SMP corroborates the research of Hodson (1992) as well as that of Roth and Lee (2004). The implication in both authors’ studies is that the hands-on experience that students receive from field trips, science labs, and other activities is one of the most valuable experiences for the students. Such experiences give the students a tangible sense of accomplishment, as well as an experience that is not normally available in the everyday repertoire of the classroom.

In addition to the hands-on learning and demonstrations, mentees also had the opportunity to share their learning with administrators, mentors, teacher/liaisons, and special guests during their project presentations. These projects included a wide range of topics such as genetically modified organisms, genetic diseases and cancer. Mentors and administrators commented on the high level of the presentations and that they themselves benefited as ‘co-learners’. Further, a number of mentees after completing their mentoring decided to ‘pay it forward’ and become mentors themselves. In fact, some students were mentors while simultaneously being mentored. This activity demonstrated the reciprocal nature of mentoring and its significant role in building sustainable learning spaces and confirming the observation of Chandler and colleagues (2005) that mentees also have something to contribute to the discourse.
Arguably, a result of their engagement due to hands-on activities, many of the participants noted that they were increasingly interested in academics when they returned to school. They also had increased confidence in their ability to engage in academic activity. Several participants stated that their participation in the SMP was a major influencing factor in pursuing medicine or the sciences as an academic and career path.

Some of the high school teachers and mentors also noted the increased positive nature of the students returning from the SMP. They noted that the program gave the students the extra confidence and belief that focusing on science and academics in general was a worthwhile endeavor, with 40% noting a strong desire to concentrate on academics, a desire to enter medicine, and a general goal oriented motivation. One of the teachers, Mr. Dale, talked about a student as “apart from the confidence, has increased his attitude towards school. He has a much more serious attitude towards school.” Two teacher/counsellor participants (40%) also noted that the SMP was a program that allows the students to network with people in the medical and science fields, which further increased positive success for the students who participated.

Mentors also noted that part of the academic benefit was exposing students to university-style research and academic environments. The students were given the opportunity to work independently, which greatly benefited students when they returned to high school and when they finally entered university. As one former mentee had noted, “I can tell you how it pertained to me in a sense that if I didn’t do the program, I’d have probably dropped out.” Results further implicated that the participation of the student resulted to achieve enabling factors and competencies both positive for the program and the student mentee.
Grade Level and Career Decision Making

A significant percentage (67%) of the mentees agreed that there was an optimal time to participate in the SMP which suggests that if students were exposed too early to the program, the exposure could be lost on those students. Participants noted that students that are in Grades 9 or 10 would be too young and will soon lose their interest gain in the SMP. This is because, these students are still trying to learn the nuances of being in high school. Students had to be targeted at the correct age, and overwhelmingly the interviewees agreed that the last two years of high school were the appropriate time to attract students to the program. Former mentee Angela summed it up with, “I think Grade 11 was perfect, I think that is the perfect time for students to come in. Grade 9 and 10, I think, students are adjusting to high school, they are having a hard time.” Also, students who are more advanced in their high school placements have increased awareness of significant imminent decision-making in life, such as careers and attending university. This finding is particularly evident in relevant studies of career development (Achebe, 1982; Alvi & Khan, 1983; Fouad, 1988; Savickas, 1984; Watson & Van Aarde, 1986).

Career development gained particular emphasis during the transition period of high school students to post-high school. In career development, there is consideration on career maturity of the students involved in the process. Savickas (1984) defined career maturity as the readiness of the individual to make informed, age-appropriate career decision and cope with career development tasks. Various researches contended that Grade level is an appropriate differentiator of career maturity than age due to the educational milieu as the primary agent of development of career behavior and career decisions the students are required to make (Niece & Bradley, 1979; Watson & Van Aarde, 1986). Career maturity and career decision patterns vary across age. Consistently,
research indicated monotonic progression of career maturity (Achebe, 1982; Alvi & Khan, 1983; Fouad, 1988; Watson & Van Aarde, 1986). However due to several unexplained factors, indecisions decreases at ages 12 to 14 years old and relatively increases at 17 years old at post-school activities. As such, these studies support the notion that Grade level is a more relevant criteria in the selection of the participants than age. However, it can be noted that career maturity observes monotonic progression that the higher the age of the student is, the more the student is likely to be decisive in choosing appropriate career. This finding is also corroborated by a recent study on preparation for healthcare careers by Statistics Canada (Statistics Canada & Health Canada, 2009).

Towards a New Theoretical Understanding of Mentorship

Mentoring Oriented Teaching and Learning Strategy (MOTALS)

The study revealed salient findings not only for improving the operations of the SMP but also for furthering our understanding the mentoring phenomenon. Based on the themes generated from the interviews data, I have proposed a 3-dimensional conceptual model, Mentoring Oriented Teaching and Learning Strategy (MOTALS) which provides a visual presentation of the SMP-type mentoring environment as a community of practice/learners organically incorporating educators and other professionals held together by supportive and professional communication (inner spherical nucleus) (see Figure 5.1), along with an orbital array of 4 metathemes:

1. Assessment, confidence, and motivation;
2. Learning and mentoring environment;
3. First hand experience, active mentoring, and futures orientation; and
4. Identity, race, and equity issues.

![Figure 5.1](image)

*Figure 5.1 Author’s compilation of Community of Learners/Practice aspect of the Mentoring Oriented Teaching and Learning Strategy (MOTALS).*

The proposed 3-dimensional orbital arrangement of these metathemes suggests a very complex interaction—requires further study—between themselves as well as with the mentoring environment (community of practice/learners). This framework supports the notion that a learning/practice community structure creates stimulation and curiosity to improve students’ desire and motivation to learn through a sense of belonging in a trusting, supportive, and rigorous environment (Allen & Eby, 2007a; Downey et al.,
that students increase their engagement in class, improve graduation rates, find meaningful employment, and improve their attendance to post-secondary education through participation in mentoring programs that inspire them to learn and engage in learning communities (Fox & Grams, 2007; Greene & Winters, 2005; Hansen-Thomas,

*Figure 5.2* Author’s compilation of complete model of the Mentoring Oriented Teaching and Learning Strategy (MOTALS).
2008; Person & Rosenbaum, 2007; Phelps, 2006). The SMP facilitated the engagement of its mentees through hands-on activities and creative dynamic group discussion of their personal learning that invokes transformational learning while constructing personal achievement (Erickson, 2007). Furthermore, the SMP demonstrated a community of practice where stakeholders offer professional and supportive communication and actively engage the process of stimulating the mentee’s interest in prospecting a career in medicine or medical science. Based on the results of this study, I expect the proposed MOTALS to contribute to increased confidence, positive outlook, a sense of empowerment, commitment to success, and a positive sense of self and identity.

Results of this study revealed that the SMP gives students opportunity to articulate their interest in learning while stimulating their interest in prospecting a career in medicine or medical science. Broadening the curriculum to include mentors working in real-life contexts gives students a sense of purpose to their learning. Relating real word content to projects in which they have an interest improves student engagement and achievement (Phelps, 2006).

Assessment, confidence, and motivation.

Top performers in science are confident learners. The average index of self-efficacy – a measure of the student’s level of confidence in their own ability to handle specific scientific tasks effectively and overcome difficulties – of top performers is 40% higher than that of strong performers. (OECD, 2009c, p. 13)

The finding of this study corroborates an earlier study by Linnehan (2001) that found a positive relationship between adult-youth work-based mentoring of African-American students and academic improvement. Linnehan (2001) posited, “Work-based, adult mentoring programs provide opportunities for vicarious learning and social
persuasion, both of which are believed to be significant determinants of self-efficacy” (p. 322). Self-efficacy is “the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1997a, p. 3). The central mediating role of self-efficacy in the lives of students in navigating their future careers was quite evident in the present study as seen in a current mentee’s response to a question concerning career options and the SMP for minoritized students:

I think they [racialized students] would like to have – actually see [emphasis added] what it is they could do, like what it is that is out there for them if they did work hard in school you know. They actually have an example of where they could be in a couple of years so I think it would be a useful program to put into schools.

With regards to the prospective future career in medicine, a current mentee said:

I always wanted (...?) training ward and birth stories and stuff like that I always find the whole thing interesting. Like just recently (...?) I wanted to do this. I thought I wanted to go into business but then I realized that it’s not something that I’m interested in and then I can at least look into the options obstetrician and gynecologist.

Within a mentoring oriented environment, teachers have a critical role to play in developing and nurturing this vital competency of self-efficacy in students. The provision of supportive communication plays a significant role in the mentee-mentor relationship (Harry, 1992; National Academy of Sciences, 2004; Roth, 2001; Saljo, 2004; Trumbull et al., 2001; Wallace, 2005; Wenger et al., 2002).

Extensive research in psychology suggests that self-efficacy is a significant predictor of intentions and choice to pursue a task and it also affects persistence, thoughts and feelings during the task (Bandura, 1997a; Maurer, 2001) and is a significant
precursor for career acquisition (Maurer, 2001; Zimmerman & Cleary, 2006). Also, Bandura (1997b) posited that when individuals observe others who are similar to themselves performing a task successfully (vicarious experience), this experience helps to bolster the observer’s own self-efficacy. The converse is also true when failure is observed. This can negatively affect self-efficacy (Bandura, 1997a; Maurer, 2001). The more confident one is that he or she can perform an activity successfully; the more likely it is that one will participate in the activity. It is important to note however, that assessment which includes feedback from teacher/mentor is a critical element in activity performance which in turn impacts confidence. Mahoney (2002) argues that teachers need to move away from the Skinnerian attitude of rewards and punishments and offer students thoughtful comments and feedback in order to promote greater learning. This was clearly demonstrated in the current study where mentees compared their toxic and patronizing school learning environment to the accepting and caring SMP environment where feedback was friendly and non-judgmental. Confidence building is particularly relevant for minoritized students who are generally less motivated and tend to gravitate towards the margins of academic and career-focused activities (Downey et al., 2005; Fox & Grams, 2007; Ginwright, 2004). Self-efficacy for development and improvement of career-relevant skills is the belief by an individual that he/she is capable of improving and developing his/her skills (Bandura et al., 2001). Earlier research (Bandura, 2006; Bandura et al., 2001; Downey et al., 2005; Wlodkowski & Ginsberg, 2003) and more recently Gutsell and Inzlicht (in press) support the vital role played by same race educators and mentors in the learning experience of minoritized students.
Self-efficacy was achieved through the participation of students in the SMP. In this mentoring environment, students were able to feel empowered for a number of reasons. From an authentic assessment perspective, the students felt that the mentors treated them as equals or adults rather than just teenagers or students in a class. The students were given the feeling that what they did—watching, communicating, and participating in other ways—during their time with the mentors mattered and that the mentors cared about what experiences the students were able to gain. This (feeling), in turn empowered students to leverage the experience gained to support an increased sense of achievement when the students returned to secondary school and when they eventually entered university.

**Learning and mentoring environment.**

According to Fresko and Wertheim (2005) “Mentoring is an educational tool of empowerment, entailing a relationship of coaching, counselling, and caring that enables both mentor and mentee to grow and develop” (p. 3). Through self-efficacy, mentoring affords student a sense of empowerment and entitlement, which leads to confidence, paving the way for career acquisition (Burgess, Yates, Herald, & Wall, 1994; Pololi, Knight, Dennis, & Frankel, 2002; Schmidt, Marks, & Derrico, 2004; Wolliston, 2007). One past mentee of the study noted that the environment SMP provided to mentees was seen to be an important aspect in exposing the students to university study habits and oriented them to the differences of high school and expectations of postsecondary students. The positive learning and mentoring environment, as revealed in this study, proved that passionate educators who demonstrate their commitment to student learning by openly discussing topics, issues, and exploring ways to improve their instruction in
return, proves to stimulate positive student engagement in courses such as medicine and medical and sciences.

A follow-up report from the 2006 PISA study revealed that while many high performing 15-year-olds have a general interest in science careers, about half are not well informed about what this entails (OECD, 2009c). Less motivated, yet high-performing students tend not to enjoy science lessons and not to get involved in science outside school, even if they do well on a test. Overall, the report shows, schools in most OECD countries do a reasonable job in transmitting science knowledge and skills but they fail to engage students in science and science-related careers. That could be a handicap for tomorrow’s science-based societies, which will increasingly depend on people both pushing the frontiers in science and taking a positive attitude to science as citizens. Science mentorship programs such as the SMP present an excellent approach to engage students with a focus on career acquisition.

The report also revealed that about two thirds of top science students do not watch science programs on television or read science related articles and more than three quarters do not visit web sites about science topics or attend a science club (OECD, 2009c). Arguably, in order to fortify the future with a large and diverse talent pool ready to take up the challenge of careers in science, schools along with the larger community have important roles to play in making science studies more enjoyable and fulfilling (OECD, 2009b). With supports such as the Internet or computer game content that apply scientific principles, and better television programming and cartoons based on science that are more engaging for students, along with the personal touch of caring mentors, policymakers can go a far way in making science more interesting accessible and
equitable both inside and outside the classroom for all students especially those who are marginalized.

The SMP demonstrates efficiency by providing a learning/mentoring environment that was responsive to both mentors and mentees. The SMP operationalizes this attribute by monitoring the on-going progress of its mentees in a caring and respectful manner. For instance, the SMP depicts a learning/mentoring organization where its members hold a strong belief that learning is empowering, valuable, continuous, and most effective when shared and that every experience is an opportunity to learn (Brophy, 1986; Murphy & Hall, 2008; Reglin, 1998; Zachary, 2005). Further, with a mentoring-oriented mindset, individuals are more likely to cultivate 21st Century workplace-ready skills (Hilton, 2010) such as actively taking charge of their own learning and nurturing that of others (Dweck, 2006; Mullen, 2010).

Notwithstanding the positive attributes of the SMP reported to date, it is essentially a one-size-fits-all intervention with some noteworthy limitations. The SMP mentoring model in general terms, is traditional and westernized. Although mentoring for the most part takes part in groups and in a number of cases incorporate some Aborigine traditions and values such as sharing circles, at the time of writing there was not much room for significant variation and flexibility to meet the distinct social and cultural nuances of Aborigines. Klinck and colleagues (2005) posited that for Aborigine mentoring programs to be successful, they have to be developed in partnership with community members, mentees family, and linked to similar existing community programs.
First Hand Experience, Active Mentoring, and Futures Orientation

As a specific example of how hands-on learning was achieved, the mentors allowed the students to experience the real-life situations that constitute the medical profession. They were not treated as children, rather as responsible actors that were given the chance to interact with the daily experiences of the profession. One current mentee puts it very passionately:

I went to an orthodontist’s office and I enjoyed that one very much because (1) I want to be an orthodontist and (2) the guy was really nice. His staff and everyone welcomed me as a dentistry student instead of a high school student. They didn’t treat me as a little kid who didn’t know anything coming into it. They treated me like someone who knew stuff and was just coming to look. They let me help set braces and he explained like different disorders and I didn’t feel like he was dummying it down for me, he was just explaining it, so like that was really a positive thing. Another good one I went to was when I went to an emergency room for the whole day and that doctor and the nurses also treated me as if I was like a medical student and even the patients, like they didn’t really know that I was a high school student, I don’t think. But the doctor told them this is a student who is looking for the day and they just accepted that and like I felt really welcome there and he was showing me the case and explaining, if I had any questions and was like asking me what I thought about the diagnosis and stuff which is really good. Because most doctors wouldn’t do that because you’re not a doctor, you’re just a student but he was asking me my opinions, what do I think about this and this. So I think that this was a really good mentor. I think a good mentor would try to get you involved [emphasis added] so you can see [emphasis added] what it really is like.
The evidence from this study is that active mentoring allows students to become involved or engaged and develop valuable skills. Within the mentoring environment protégés see and experience the real world of work, the skills, attitudes, and habits of mind necessary for success. Subsequently, students have the best opportunity to decide if they would like to participate in this career (Ayyavoo et al., 2005; Barab & Hay, 2001; Basu & Barton, 2007a; Hodson, 1992; Lee, 1999a; Odih, 2002). To further add to this aspect of the discussion, the mentoring environment provides ample opportunity for protégés to learn about themselves, build self-belief, self-concept and self-confidence within a naturalistic sociocultural community of practice with successful professionals who share similar ethnoracial backgrounds (Anderson et al., 2005; Zeldin et al., 2008).

Another added benefit of the SMP mentoring is the occurrence of incidental learning. Incidental learning is an important element associated with career development. Mentoring provides a rich opportunity for this genre of learning. Kerka (2000), defined incidental learning as:

Unintentional or unplanned learning that results from other activities. ... It happens in many ways: through observation, repetition, social interaction, and problem solving. … This "natural" way of learning has characteristics of what is considered most effective in formal learning situations: it is situated, contextual, and social. (p. 1)

From the analysis of the interview data, it was evident that both mentees and mentors invariably experienced this type of learning throughout the course of the SMP. As in real life, the student participants were exposed to many situations that were not intentionally laid out as part of the program by directors or coordinators. As previously noted, the importance of this type of hands-on, real life interaction in the medical field was affirmed by the majority of participants (89%). The students experienced many incidents that are
commonplace in the medical profession and were able to learn and adapt to things that were not planned.

It would be apropos to recall the anecdote in Dr. Jamlin’s interview that illustrated an excellent incidental learning opportunity. I was an unplanned event of a recent SMP session:

In the emergency department it’s the first time that they’ve [mentees] appreciated the significance of riding a bicycle without a helmet if they see someone that has got a terrible injury right? It’s the first time for many of them that they have ever seen a family interact with a severely physically or mentally handicapped child.

This is the exact experience that is being referred to as incidental learning. The SMP had no intention of creating that situation, but because the students were exposed to such an incident, it provided an impromptu learning experience that can also be captured as timely teachable moment. Incidental or informal learning is vital element within the wider context of life-long and personal learning within a community of practice (Conlon, 2004; Pedretti et al., 2003).

On a related note, many of the participants in this study indicated that it was important to target students at senior Grade levels (viz., 11 and 12). Studies revealed that Grade level is an important variable in career development (Niece & Bradley, 1979; Watson & Van Aarde, 1986). Given the monotonic progression of career maturity, the suggestion from participants in this study for selection of students in senior Grades supports the literature (Achebe, 1982; Alvi & Khan, 1983; Fouad, 1988; Watson & Van Aarde, 1986). There is an optimal timing for exposure of students to professionals for the purpose of priming them for career acquisition (Zachary, 2002; Zachary, 2003; Zachary,
The results of this study suggest that for the SMP to achieve an optimal level of success, it should consider selecting students from senior Grades in secondary school. Grade 11 is considered ideal since mentees are able to take the skills they learned during the SMP and apply them to secondary school before they have to readjust socially and academically to university life.

**Identity, Race, and Equity Issues**

Race matters, is pervasive, and highly complicated in the lives of minoritized students (Anyon, 1995b; Ball, Reay, & David, 2002; Banks, 2009; Codjoe, 2001; Delpit & Dowdy, 2002; Fleming, Barner, Hudson, & Rosignon-carmouche, 2000; Ginwright, 2004; Gutierrez et al., 1995; Johnson-Bailey, 2002; Lopez, 2002; Singleton & Linton, 2006; Skiba, Michael, Nardo, & Peterson, 2002; West, 2001). The systemic flaws within the Canadian society which is rooted in the historic inequalities and longstanding ethnocultural stereotypes affect students both academically and socially (Codjoe, 2001; Lewis, 1992; McMurtry & Curling, 2008). The frustration due to crippling stereotypes concerning professions especially promoted by the media, was eloquently voiced by a current mentee:

I think it [media] discourages people from entering professional fields like medicine, engineering, law and stuff like that because the media is constantly saying you can’t do this. It’s been shown, you can’t do this and I guess if you don’t have such a strong support base, like I guess the people [mentees, mentors, etc.] in the mentorship program ... [be]cause I’m sure most of these people [mentees] have parents who say university is not an if! it’s a definite! So if you don’t have a strong support base I think that the media can get to you and you will go into a less challenging profession where there’s less opportunities for advancement.
The matter of race is especially poignant as part of students’ academic experience in general and science achievement in particular (Hodson, 2009; Pedretti et al., 2003; Rennie, 2005). Several of the SMP mentees noted the same sentiments that the race of their teachers mattered in their learning. The race of teachers influenced the decisions of the students relative to their engagement in school activities and their ability to perceive opportunities beyond secondary school. The complex involvement of the race of educational personnel, primarily teachers in the lives of students is well documented elsewhere (Delpit, 1995; Ginwright, 2004; Howard, 2006; James & Burnaby, 2003; King, 2005; Lee & Smith, 1999; Sleeter & Grant, 1999). In this study, even thought school experience including the effect of race was not directly mentioned in the research questions and was in fact an artifact of the collected data, all categories of participants overwhelmingly implicated its impact not only on teaching and learning but its pervasiveness in the entire life and identity of the minoritized person (Klinck et al, 2005).

One mentor summarized it this way:

I mean slavery demasculinized every Black man on North American soil. EVERY BLACK MAN [emphasis added]. It isn’t that bad in Europe because they weren’t many plantations in Europe but if you look at North America, the West Indies and all that, we were at a loss - a completely lost generation and that has impacted on every Black man or woman who lived in North America, and the North American concept or who a Black man is hasn’t changed. I AM SORRY, IT HASN’T CHANGED [emphasis added]. A Black man is still mediocre as compared to other people. So it doesn’t matter when one individual get up there. I MEAN WHEN HE GETS UP THERE [emphasis added], I mean there are all kinds of things happening up there which is always pointing a finger to more or less
marginalize, MAKE YOU FEEL THAT YOU DON’T BELONG [emphasis added]. Make you feel that you are not doing as well.

The pervasive nature of the involvement of race in the MOTALS model is symbolized as an orbiting entity. The race effect clearly requires further study, however, the social neuroscience work of Gutsell and Inzlicht (in press) discussed earlier may hold some promise in unraveling this mystery.

Many of the participants perceived a gap in the ability of teachers to relate to students and to allow students to actively engage the learning process. The SMP is designed to mitigate teacher-student gap particularly in the aspect of race. Although Canada has advanced to some extent with respect to social justice (Levin, 2007), the significant gaps in performance among various ethnic and language groups calls for a critical investigation of a pedagogy that is efficient, inspirational, and engaging in order to meet the needs of these students who are at-risk and are on the fringes of science learning (Aboriginal Education Office & Ontario Ministry of Education, 2007b; Aikenhead, 2006; Cummins, 2008; Hodson, 2008; Levin, 2007; Noguera, 2008; Roth & Lee, 2002). Motivation is essential to learning at all ages, but it is particularly important during adolescence and very important among minority students that are seeking social mobility (Salili, Chiu, & Hong, 2001; Seifert, 2004; Wlodkowski & Ginsberg, 2003; Yoon, 2005).

There seems to be little doubt in the minds of mentees and other respondents that the SMP has contributed to the positive post-program identity and motivation of the protégés. However, from a border-crossing framework that assumes certain implications and power dynamics in being moved from one sub-culture to the dominant culture, further risk-benefit analysis seems pertinent. Is it possible that the SMP is exercising
undue power in moving unwilling minoritized individuals into a dominant culture where they are likely to become misfits, losing sense of self and identity? On the other hand, is the SMP more a source of support and knowledge, allowing racialized individuals the opportunity to be empowered to make decisions to change their life course for the better? Further research incorporating metacognitive tools would likely shed some light on these perplexing questions.
CHAPTER SIX: CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

Interested stakeholders which originally included former Associate Dean Mona Rateman, MD and Donna Angus, of the Faculty of Medicine, University of Toronto, along with the Association for the Advancement of Blacks in Health Sciences (AABHS) recognized the gross under-representation of Aboriginals and Blacks in the Faculty of Medicine and other health sciences careers and in 1994, decided to do something about the disparity by developing a mentorship program—the SMP. By examining the essences of mentoring through the lived experiences of the participants, this research attempted to shed light on the extent of success of the program, determine the factors responsible for its success, and explore a theoretical framework for the mentoring phenomenon within the context of a sociocultural perspective of multicultural science education.

For the 10 year period from 1994 to 2004, using interview data and the methodology of phenomenology, the lived experiences of mentees, mentors, teachers/liaisons, and administrators were captured and analyzed. The study forged an understanding on how the mentorship program addressed specific enabling factors and competencies within the context of multicultural science education. Also, the investigation strived to understand how the SMP was able to expose Aboriginal and Black teenagers to the prospects of professions in medicine or medical sciences despite disenabling factors such as structural inequalities, inherent biases, poor instruction, and hidden racism.

The study was able to provide an in-depth understanding of the lived experiences of the participants involved. In addition, the study has set the groundwork for future studies of the SMP and strategies that will help improve its growth, effectiveness, and
structure. On a broader social scale, it was also revealed that the SMP is having an impact by helping to change the face of medicine and medical science in its local jurisdiction so that it looks more like the society it serves. There are several notions to consider in planning to further enrich the approaches of the program and consequently serve more students. The most important consideration is that the SMP has been found to be an effective tool to expose Black and Aboriginal students to the medical field. The interviews indicated that the program provided positive experiences for its participants. Past mentees, current mentees, mentors, teachers/liaisons, as well as administrators of the program all had positive reflections of the program. There was broad agreement that some of the goals were being met thoroughly. For instance, an increased level of participation when students returned to high school, an increased awareness in the academic and career choices available to the protégés, and recurring points of praise for the program from all 5 categories of participants.

As well, the study concluded that there is serious value in exposing underrepresented minorities to participants in the medical profession who come from similar backgrounds. Regarding exposure, students maintained that it was due to seeing people that looked like them enjoying high and valuable positions within the medical community that it became apparent to them that this was something possible for them as well. Without such exposure to minorities already in the medical field, there is the possibility that many of the underrepresented minority students may have no genuine feeling that there is a place for them in this field. In this regard, the SMP attempted to change the social circumstance, and the results of this study imply, albeit from a relatively limited amount of data collection, that there has been change within those who
have participated in the SMP. From the interviews, there was a perception that, indeed, such professions, which were perceived to be closed off to minority students, were attainable.

Finally, the study found that there have been profound influences on the attitude and academic behavior of the students, especially that their decisions post-SMP were much more focused and positive. In this regard, the study provides an opportunity through the proposed MOTALS model to forge further elucidation of the complex interactions of variables such as assessment, confidence, identity, learning environment, and motivation in the mentoring experience.

**Implications, Limitations, and Significance of the Study**

The conclusions generated through the analysis of the data from participants’ interviews implicated that there are certain structural aspects of the program that could be changed in order to make the SMP more efficient and have greater effect on the participants. Many of the mentors noted that there was little to no feedback or updates from the program itself on the wellbeing of the students after they had completed the program. In this regard, the need for 21st Century communication strategies and applications such as social computing networks is perhaps indicated. There are significant benefits to the use of social networks such as convenience for knowledge sharing, unparalleled user comfort and empowerment and; hierarchical controls are replaced with flat, open, interactive technologies conducive to reciprocal mentoring. There are however, some serious security drawbacks—loss of confidentiality, information overload, inability to control information leakage, and legal liabilities—that must be considered if this method of communication is to be implemented. I would therefore recommend some
evaluation of the benefits and risks of social media in this mentoring context before its implementation. The implications for improved communication such as feedback for mentors’ professional development as well as mentees’ post-program connection and feedback would be the creation of tighter bonding within the emerging community of practice/learners. This bonding would encourage students to continue to actively make connections and strengthen existing connections within the medical community.

Another area where there seems to be little or no communication is between the program and the high schools about the status of students. The implication for improved communication in this area would be the opportunity for the high schools to improve and increase the techniques used to target the students they think are most qualified or deserving of the opportunity to participate in the SMP. In addition, being able to track the students’ progress longitudinally over a number of years starting in high school, will give the program a better idea of how it can refine its own goals and methods in order to better serve the students that it selects.

The study was limited to participants in the SMP program, which itself was limited to minoritized students of Black and Aboriginal backgrounds. The study was also limited by the honesty of the participants’ responses during the interviewing process. There is no guarantee that respondents answered with complete honesty despite being told that their anonymity would be protected. Further, the study is limited by the ability of the researcher to minimize bias due to the researcher’s own background and preconceptions (Wallace & Louden, 1997).
Recommendations for Further Research and Practice

There are several recommendations for further research regarding the SMP. The first recommendation would be to conduct a study more heavily focusing on the impact the SMP has on Aboriginal students who completed the program. Due to my own inability to address the various social, cultural, and language differences in this study, such a demographic would be an important focus point for developing a more complete representation of the role the SMP plays in the lives of the Aboriginal students who attended the summer program.

Another recommendation would be to conduct a longitudinal study that would attempt to follow students over a longer period of time. This would be particularly relevant in the period of time in high school after completing the SMP and the first year of university. A closer inspection of multiple years of the student’s lives would provide researchers and educators a richer and more in-depth understanding of the impact the SMP has on students’ academic behaviour and outlook.

Administrators and leaders of the SMP could incorporate a system whereby mentors are able to see the long-term impact of their summer mentoring. Many of the mentors noted that they receive little or no information about the mentees. Such information would be valuable to the mentors, both as feedback and as a way to help understand methods that work. This problem could be addressed by incorporating a virtual social networking tool such as Facebook™ for the benefit of past, present and future participants especially for recruiting mentees. There is a structure already in place whereby the students are not only getting exposure to the medical profession and to the sciences, but are also getting exposure to important professionals within the medical establishment even long after the formal mentorship program is completed. The protégés
have intimate access to professors, physicians, orthodontists, researchers, surgeons, and other people who are well respected within the medical and research community in the Greater Toronto area. A further significant benefit of a social networking tool is that it could be reinforced and used as an overt tool to encourage students to participate in the program. It is not merely the exposure to the profession itself, but also to the professionals that populate it and the ties they possess within the community that can help. Such a network could constitute an additional feature of the program that would address problems of social mobility and inclusion for underrepresented minorities in the medical/health sciences field. Virtual Social networks such as Facebook™ could play a vital role in this aspect of the program.

An additional recommendation for the administrators of the SMP would be to create a more active partnership with the various school districts that recruit students to the program. The sharing of information such as objective academic data about student progress after completing the program could be valuable to the SMP for a variety of reasons. One example would be to better understand how students improved their academic achievements upon completion. If there are areas that students are still having difficulty with, the SMP could address those issues by focusing more heavily on particular aspects of the program in subsequent years. Also, access to objective longitudinal academic data would allow for more in-depth study of self-efficacy and career acquisition in medicine and health sciences.
With regards to theory, further work is recommended for a more detailed analysis of the data from a Cultural Historical Activity Theory (CHAT) perspective. The ‘activity triangle’ (see Figure 6.1) originally developed by Vygotsky to illustrate the relationship between subject and object, mediated through tools was later modified by Engestrom (1987) to include the more complex social mediation represented by community could serve as a starting point for this further analysis.

**Figure 6.1** The activity of multicultural science education with a specific goal for minoritized students (Aborigines and Blacks) to select professions in medicine and health sciences by way of mentoring as a meditational tool.

Source: (modified from Engeström, 1987, p. 78)

The goal of this activity of multicultural science education is to engage minoritized students (Aborigines and Blacks) who are underrepresented in the field of medicine due to historic systemic racism (subject). The object of the activity is to engage these students in learning science through the meditational tool of mentoring in order to achieve the outcome of acquiring careers in medicine and health sciences. The data from
this study points to a complex of two activity systems sharing a common object (see Figure 6.2).

**Figure 6.2 Proposed activity system of multicultural science education in school and the University of Toronto SMP, with a specific goal for minoritized students (Aborigines and Blacks) to select professions in medicine and health sciences.**

Source: (modified from Engeström, 1987, p. 78)

One side of the complex represents the University of Toronto mentoring surroundings as one community in question while the other side represents the school system as the other community in question. In the school community, the values, rules, and conventions include the generally negative, vertical discriminatory practices such as assessment; whereas, in the mentoring community, the values, rules, and conventions are more positive with horizontal relationships. The division of labour is also different on either side of the shared objective (engagement in science learning)—on the school side, the division of labour and authority is generally top-down in which the teacher maintains the role of “primary knower” (Berry, 1981); on the mentoring side however, even though knowledge sharing is generally vertical, horizontal dialogue is highly encouraged. Other nodes in the activity system require further research and analysis, for example, it would be of interest to explore the effect of metacognition as a meditational adjunct to
mentoring. Of interest also, would be the impact of reciprocal mentoring on science learning engagement and the ultimate outcome of career acquisition in medicine and other health sciences.

Activity theory has been criticized for its inability to cope with multiple perspectives and its unidirectional portrayal of activity. For example, Wells (2002) found that the theory was less able to portray reciprocal influences and effects across components, especially when the object of study is a ‘learning dialogue’ such as mentoring. Therefore, further work is also recommended in order to fine-tune the Mentoring Oriented Teaching and Learning strategy (MOTALS) framework that incorporates students as reciprocal natives in a welcoming community of science practice rather than passive immigrants in a strange and scary land of impersonal, non-contextual science knowledge. Along these lines, it is recommended that schools encourage the nurturing of good attitude and competence in school science as necessary and valuable preparations for careers in medicine and medical sciences. Hopefully, as a result, teachers adopting a MOTALS model would see an improvement in attitude and academic achievement of their students especially those from minoritized backgrounds (Colley, 2003; Corry, 2005; Fancsali et al., 2005; Keating, Tomishima, Foster, & Alessandri, 2002; Reid, 2002). If school systems were to employ a strategy that relied more heavily on mentorship, perhaps students would be encouraged to be more engaged in science. Finally, the proposed framework resulting from the collected themes of the study is further recommended in the implementation of SMP where race and ethnicity were among the issues that hinder the career acquaintance of students in medical and science fields.
Summary

This chapter presents the conclusions, implications, limitations, recommendations and significance of the study based on the coded participant interviews. There are benefits that participants of the program enjoyed both during the program as well as after completion. There was an increased level of school and community involvement when students returned to high school and an increased awareness of the academic and career choices available to the protégés. The participants involved in this study indicated that on the whole the experience with the SMP was a positive one that significantly impacted their lives. The mentees indicated that the influence of the SMP followed them much further than the end of the summer and many consider it to be an important and defining moment in their educational journey.

But there are certain structural and strategic aspects of the program that could be modified in order to improve its growth, efficiency, and effectiveness. Communication could be improved so that mentors get a sense of the direct impact of their mentoring as well as feedback for their own professional development. Admittedly, schools do not always comply with information given, however, improved communication from the SMP would help them to refine the techniques used to target the students they think are most qualified or deserving of the opportunity to participate in the SMP. Among the several recommendations is the need to conduct a study more heavily focusing on the impact the SMP has on Aboriginal students who completed the program. This would mitigate my limitations as researcher in the present study to adequately address the various social, cultural, and language nuances of Aboriginal students. Finally, from a theoretical perspective, further work is recommended for a more detailed analysis of the data from a CHAT perspective. Also, further work in order to fine-tune the Mentoring
Oriented Teaching and Learning Strategy (MOTALS) framework that incorporates students as natives in a welcoming community of science practice rather than immigrants in a strange and scary land of impersonal, non-contextual science knowledge.
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APPENDICES

Appendix 1: Ethics Approval Letter

University of Toronto

OFFICE OF RESEARCH SERVICES

PROTOCOL REFERENCE #7615 now #10129

December 10, 2003

Prof. Miriam Rossi
Dept. of Paediatrics
Hospital for Sick Children
555 University Avenue
Toronto, ON
M5G 1X8

Mr. Leroy Clarke
952 Sandiffl Drive
Oshawa, ON
L1K 2E4

Prof. Derek Hudson
Dept. of Curriculum, Teaching and Learning
Ontario Institute for Studies in Education
252 Bloor Street West
University of Toronto

Re: Your research protocol entitled, "Mentoring inquiry: Impact Evaluation of University of Toronto Health Sciences Summer Mentorship Program"

We are writing to advise you that a member of the Education Research Ethics Board (REB) has granted approval to an amendment (dated August 6, 2003) to the above-named research study under the REB’s expedited review process. The amendment involves mentor interviews and observations.

The following consent documents (received December 4, 2003) have been approved for use in this study: Invitation Letters for Mentees, Consent Form for Mentees, Audio Taping Consent Form, Invitation Letter for Current Mentees, Consent Form for Current Mentees, Invitation Letter for Mentors, Consent Form for Mentors, Invitation Letter for School Liaison Teacher Guidance Counsellor and Consent Form for Teacher Guidance Counsellor. Participants should receive a copy of their consent form.

During the course of the research, any significant deviations from the approved protocol (that is, any deviation which would lead to an increase in risk or a decrease in benefit to participants) and/or any unanticipated developments within the research should be brought to the attention of the Office of Research Services.

Best wishes for the successful completion of your project.

Yours sincerely,

Bridget Murphy
Assistant Ethics Review Officer

xc: Prof. M. Schneider (Chair, Education REB)
Appendix 2: Description of Subject Categories

*Description of subject categories*

<table>
<thead>
<tr>
<th>Categories of Subjects</th>
<th>Data Collected*</th>
<th>Ethics Requirements♣</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category C, Mentor: Served as mentors for first cohort as well as for current mentees</td>
<td>Semi-structured interviews (5)</td>
<td>C1. Invitation to participate C2. Consent Form C3. Interview protocol C4. Audio-taping consent</td>
</tr>
<tr>
<td>Category E, Teacher/Guidance Liaisons: Teachers/guidance counsellors who were familiar with the program as well as with the participating (mentees) and non-participating students</td>
<td>Semi-structured interviews (5)</td>
<td>D1. Invitation to participate D2. Consent form D3. Interview protocol D4. Audio-taping consent</td>
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<tr>
<td>Category F, Key Informants: Board of Education Directors/Facilitators, University Faculty Members/Directors/Administrative Personnel directly involved in the program</td>
<td>Semi-structured interview/video-tape (3)</td>
<td>E1. Invitation to participate E2. Consent form E3. Interview protocol E4. Audio-taping consent E5. Video-taping consent</td>
</tr>
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</table>

*Note.* *Number of data sets collected in parenthesis. ♣ See Appendixes for further details.*
### Appendix 3: Description of Participants

<table>
<thead>
<tr>
<th>Category/Role (n)</th>
<th>Pseudonym (Gender: M/F)</th>
<th>Data Collected</th>
<th>Date of Data Collection</th>
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<td><strong>Category A</strong></td>
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<td>Past Mentee (13)</td>
<td>Angela (F)</td>
<td>Semi-structured interview</td>
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<tr>
<td></td>
<td>Aruna (F)</td>
<td>Semi-structured interview</td>
<td>Dec. 18, 2001</td>
</tr>
<tr>
<td></td>
<td>Clive (M)</td>
<td>Semi-structured interview</td>
<td>Jan. 01, 2002</td>
</tr>
<tr>
<td></td>
<td>Donald (M)</td>
<td>Semi-structured interview</td>
<td>Oct. 30, 2001</td>
</tr>
<tr>
<td></td>
<td>Greg (M)</td>
<td>Semi-structured interview</td>
<td>Jun. 26, 2002</td>
</tr>
<tr>
<td></td>
<td>James (M)</td>
<td>Semi-structured interview</td>
<td>Dec. 28, 2001</td>
</tr>
<tr>
<td></td>
<td>Karl (M)</td>
<td>Semi-structured interview</td>
<td>Oct. 30, 2001</td>
</tr>
<tr>
<td></td>
<td>Kate (F)</td>
<td>Semi-structured interview</td>
<td>Dec. 28, 2001</td>
</tr>
<tr>
<td></td>
<td>Marie (F)</td>
<td>Semi-structured interview</td>
<td>Oct. 23, 2001</td>
</tr>
<tr>
<td></td>
<td>Nick (M)</td>
<td>Semi-structured interview</td>
<td>Dec. 18, 2001</td>
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<td></td>
<td>Sandra (F)</td>
<td>Semi-structured interview</td>
<td>May 25, 2004</td>
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<td>Sara (F)</td>
<td>Semi-structured interview</td>
<td>Dec. 28, 2001</td>
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<td>Winsome (F)</td>
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<td>Aug. 30, 2001</td>
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<td><strong>Category B</strong></td>
<td>Adrianna (F)</td>
<td>Semi-structured interview</td>
<td>Aug. 11, 2003</td>
</tr>
<tr>
<td></td>
<td>Angel (F)</td>
<td>Semi-structured interview</td>
<td>Aug. 11, 2003</td>
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<td></td>
<td>Charm (F)</td>
<td>Semi-structured interview</td>
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<td></td>
<td>Kisha (F)</td>
<td>Semi-structured interview</td>
<td>Aug. 11, 2003</td>
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<td></td>
<td>Stella (F)</td>
<td>Semi-structured interview</td>
<td>Aug. 11, 2003</td>
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<td></td>
<td>Yolanda (F)</td>
<td>Semi-structured interview</td>
<td>Aug. 11, 2003</td>
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<tr>
<td><strong>Category C</strong></td>
<td>Dr. Holmes (M)</td>
<td>Semi-structured interview</td>
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<td>Mentor (5)</td>
<td>Dr. Hull (M)</td>
<td>Semi-structured interview</td>
<td>Aug. 08, 2003</td>
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<td></td>
<td>Dr. Jamlin (F)</td>
<td>Semi-structured interview</td>
<td>Sep. 09, 2003</td>
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<td></td>
<td>Dr. March M (M)</td>
<td>Semi-structured interview</td>
<td>Aug. 12, 2003</td>
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<td></td>
<td>Dr. Salk (M)</td>
<td>Semi-structured interview</td>
<td>Jul. 22, 2003</td>
</tr>
<tr>
<td><strong>Category D</strong></td>
<td>Mr. Alton (M)</td>
<td>Semi-structured interview</td>
<td>Apr. 06, 2004</td>
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<tr>
<td>Teacher/Liaison</td>
<td>Mr. Charles (M)</td>
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<td>(5)</td>
<td>Mr. Dale (M)</td>
<td>Semi-structured interview</td>
<td>Mar. 19, 2004</td>
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<td></td>
<td>Mr. Porter (M)</td>
<td>Semi-structured interview</td>
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<td></td>
<td>Ms. Poly (F)</td>
<td>Semi-structured interview</td>
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<td><strong>Category E</strong></td>
<td>Dr. R. (F)</td>
<td>Video/semi-structured interview</td>
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</tr>
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<td>Director/Admin.</td>
<td>Ms. C. (F)</td>
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<td>(3)</td>
<td>Ms. L. (F)</td>
<td>Video/semi-structured interview</td>
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Appendix A1: Invitation Letter for Mentees

INVITATION LETTER FOR MENTEES TO PARTICIPATE IN A RESEARCH PROJECT

Ontario Institute for Studies in Education of the University of Toronto & Faculty of Medicine, University of Toronto

Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

I am currently involved in a research project under the supervision of Professors Derek Hodson and Miriam Rossi to address the role of mentoring in Black and First Nations students’ decisions to pursue professions in health sciences. In 1994, the University of Toronto Health Sciences Summer Mentorship Program (UTHSSMP) was initiated to address the traditionally low representation of Blacks and First Nations Peoples in medicine and other health sciences professions in Canada. After almost a decade it became necessary to evaluate the impact of this program in which you were a participant to investigate the role of mentoring in science education as compared to other traditional teaching and learning strategies. The study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of Toronto.

Your participation in this research will provide useful information on this topic. You qualify for participation if you were a mentee in the program since 1994 or later. You will be requested to participate in a private, taped one-hour semi-structured interview. The interview will focus on questions relevant to your experience as a mentee in the UTHSSMP, as well as with respect to your career choice decisions.

Participation in this study is strictly voluntary. You may withdraw from the study at any point without penalty and without providing a reason. All data from this project are confidential and will be used for research purposes only. A pseudonym and/or subject number will be assigned to all data that are collected so that no one can be identified. Names of participants will not be connected to any information. You will be provided with a transcript of the interview in order to correct inaccuracies and clarify any possible misinterpretation.

Although there are no foreseeable risks to you as a mentee participating in this study, some interview questions may be somewhat sensitive for you. If you feel this may be problematic, please feel free to decline from participation at any point in this project.

Thank you for your assistance.

Leroy C. Clarke, Ph.D candidate, CTL, OISE/UT
Telephone: 905-432-7792; email: lclarke@oise.utoronto.ca
Cc: Dr. Derek Hodson, tel.: 416-923-6641 ext.2657; email: dhodson@oise.utoronto.ca
Cc: Dr. Miriam Rossi, tel.: 416-813-6146; email: miriam.rossi@utoronto.ca
Appendix A2: Consent Form for Mentees

CONSENT FORM FOR MENTEES

OISE & Faculty of Medicine, University of Toronto

Study of Impact of Summer Mentorship Program (UTHSSMP)

I __________________________________________________________________________, am being requested to participate in a study of the impact of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)

I understand I will be interviewed in a private room so that my privacy is protected. The interview will take about 1 hour to complete. The interview will focus on questions relevant to my experience with the University of Toronto Health Sciences Summer Mentorship Program and my life and academic experiences since Grade 10. During the interview I will address issues rather than names, thereby protecting the privacy and confidentiality of others. The interview will be recorded on audiocassette and then transcribed to paper record by a trained research assistant, after which the cassette recordings will be erased. I also give permission to the investigators to review my high school and university academic and demographic records previously released to the UTHSSMP in order to determine any possible correlation between these records and the Summer Mentorship Program.

All information will be kept confidential and stored in a locked filing cabinet. A subject number will be assigned to all materials collected, so that I cannot be identified. Only the research assistant and principal investigator may access material belonging to this study. I will not be identified in any results of this study.

Risks and Benefits: By participating in this study, I will gain no direct personal benefit. However, this information may help administrators to organize and manage the Summer Mentorship Program to better meet the needs of participants. It has been explained to me that the interview will be straightforward and relatively stress-free. However, I do understand that I am free to withdraw from the study at any stage, without providing a reason.

My questions about the study have been answered and I agree to enter the study. I have been given a copy of this consent form.

________________________________________________________________________

Signature            Date
Appendix A3: Interview Protocol for Previous Mentees

Interview Protocol for Previous UTHSSMP Mentees
Semi-structured Interview or General Interview Guide Approach.

The aim is to obtain high quality evaluative information from a pre-determined set of issues through an interview procedure that is conversational and situation-specific.

Issues:

1. Get an idea of participant's pre-program sense of self and identity.
2. Get an idea of the selection process from participant's perspective.
3. Get an idea of participant's experience during the program.
4. Get an idea of how the participant's life was modified post-program (when appropriate.)
5. Identify the most significant Impact of the UTHSSMP on participant.

Prompt as needed:

Program issues

- Were you involved in any other mentorship or leadership program?
- If so, how does it compare with the SMP?
- How were you selected for the SMP? Do you consider it to be a fair process?
- Most important aspect of the SMP.
- Most exciting part of the SMP.
- Toughest part of the SMP.
- Your experience as a mentee.
- Your experience with your mentor, the mentor-mentee fit. Did you keep in touch?
- Your opinion of organization of the program.
- What suggestions do you have for organization of the program?
- Your opinion of monitoring and improving the program.

Personal issues

- Your family educational and socio-economic background.
- Your high school experience - educational and social.
- Your post-secondary school experience – educational and social (when appropriate).
- Your career choice - now and during high school.
- Your attitude and beliefs towards medicine, science, and technology.
- Your feelings towards educational policies, career counselling and training as they affect you.
- How have your feelings toward work change over the years?
- Your attitude and beliefs towards being part of a community.
- How do you see your future?

6. Most important thing that administrators, funders, mentors, researchers and, subsequent participants (mentees) need to know about interviewee's experience.

7. Was there anything that was left out that would further help in the understanding of the interviewee's experience?

8. What was it like to be interviewed?

9. Was the interviewee surprised by any of the questions, and if so, why?

10. On a scale of 1-10, indicate how worthwhile you feel the SMP is (was) for you:

    1 2 3 4 5 6 7 8 9 10

Worthless OK Worthwhile
Appendix A4: Audio Taping Consent Form

AUDIO TAPING CONSENT FORM

Title of Research Project: *Impact Evaluation of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)*

Investigators: *Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)*

I hereby consent to be audio taped during participation in this research project. Tape(s) will be used for preparing a transcript of my interview. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

In addition, I give permission for the transcript of my interview to be used for:

1. Other research projects on the same topic [ ]
2. Not to be used for anything else [ ]

In giving permission for the use of the recordings beyond the current research, I have been offered the opportunity to hear the tape(s) and I understand that I am free to withdraw my permission for other uses of the tape(s) at any time.

____________________________________   The person who may be contacted about
Name of participant the research is:

*Dr. Miriam Rossi*

__________________________________   who may be reached at telephone #:
Signature                        416-813-6146

__________________________________   Name of person who obtained consent:
Date

__________________________________
Signature

__________________________________
Date
Appendix B1: Invitation Letter for Current Mentees

INVITATION LETTER FOR CURRENT MENTEES TO PARTICIPATE IN A RESEARCH PROJECT

Ontario Institute for Studies in Education of the University of Toronto & Faculty of Medicine, University of Toronto

Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

I am currently involved in a research project under the supervision of Professors Derek Hodson and Miriam Rossi to address the role of mentoring in Black and First Nations students’ decisions to pursue professions in health sciences. In 1994, the University of Toronto Health Sciences Summer Mentorship Program (UTHSSMP) was initiated to address the traditionally low representation of Blacks and First Nations Peoples in medicine and other health sciences professions in Canada. After almost a decade it became necessary to evaluate the impact of this program compared with other traditional teaching and learning strategies. The study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of Toronto.

Your participation in this research will provide useful information on this topic. You qualify for participation if you are a member of this year’s (2002-2003) cohort of mentees. You will be requested to participate in a private, taped one-hour semi-structured interview. The interview will focus on questions relevant to your experience as a mentee in the UTHSSMP, as well as with respect to your career choice decisions. Further, I request your permission to be observed without interference during one of the mentoring sessions with your mentor.

Participation in this study is strictly voluntary. You may withdraw from the study at any point without penalty and without providing a reason. All data from this project are confidential and will be used for research purposes only. A pseudonym and/or subject number will be assigned to all data that are collected so that no one can be identified. Names of participants will not be connected to any information. You will be provided with a transcript of the interview in order to correct inaccuracies and clarify any possible misinterpretation.

Although there are no foreseeable risks to you as a mentee participating in this study, some interview questions may be somewhat sensitive for you. Further, observation may be a bit intimidating at the start of the session. If you feel this situation may be problematic for you, please feel free to decline from participation at any point in this project.

Thank you for your assistance.

__________________________________
Leroy C. Clarke, CTL, OISE/UT, tel.: 905-432-7792; email: lclarke@oise.utoronto.ca
Cc: Dr. Derek Hodson, tel.: 416-923-6641 ext.2657; email: dhodson@oise.utoronto.ca
Cc: Dr. Miriam Rossi, tel.: 416-813-6146; email: miriam.rossi@utoronto.ca
Appendix B2: Consent Form for Current Mentees

CONSENT FORM FOR CURRENT MENTEES

OISE & Faculty of Medicine, University of Toronto

Study of Impact of Summer Mentorship Program (UTHSSMP)

I ___________________________________________________________, am being requested to participate in a study of the impact of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)

I understand I will be interviewed in a private room so that my privacy is protected. The interview will take about 1 hour to complete. The interview will focus on questions relevant to my experience with the University of Toronto Health Sciences Summer Mentorship Program and my life and academic experiences since Grade 10. During the interview I will address issues rather than names, thereby protecting the privacy and confidentiality of others. The interview will be recorded on audiocassette and then transcribed to paper record by a trained research assistant, after which the cassette recordings will be erased. I also agree to be observed by the researcher as a spectator during one of my mentoring sessions to evaluate the mentor-mentee interaction. Further, I give permission to the investigators to review my high school and demographic records released to the UTHSSMP in order to determine any possible correlation between these records and the Summer Mentorship Program.

All information will be kept confidential and stored in a locked filing cabinet. A subject number will be assigned to all materials that are collected about me so that I cannot be identified. Only the research assistant and investigators of this study may access material belonging to this study. I will not be identified in any results of this study.

Risks and Benefits: By participating in this study, I will gain no direct personal benefit. However, this information may help the administrators to design better ways to organize and manage the Summer Mentorship Program to better meet the needs of participants. It has been explained to me that the interview will be straightforward and relatively stress-free. It has been explained to me that the interview will be straightforward and relatively stress-free with possibly some slight uncomfortable feeling at the start of the observation session. However, I do understand that I am free to withdraw from the study at any stage.

My questions about the study have been answered and I agree to enter the study. I have been given a copy of this consent form.

________________________________________________________________________

Signature             Date
Appendix B3: Interview Protocol for Current Mentees

Interview Protocol for UTHSSMP Current Mentees

Semi-structured Interview or General Interview Guide Approach. The aim is to obtain high quality evaluative information from a pre-determined set of issues through an interview procedure that is conversational and situation-specific.

**Issues:**

7. Get an idea of the selection process from participant's perspective.
8. Get an idea of participant's experience during the program.
9. Get an idea of how the participant's life is being modified during the program.
10. At this point, identify the most significant Impact of the UTHSSMP on participant.

*Prompt as needed:*

**Program issues**

- Were you involved in any other mentorship or leadership program?
- If so, how does it compare with the SMP?
- How were you selected for the SMP? Do you consider it to be a fair process?
- Most important aspect of the SMP.
- Most exciting part of the SMP.
- Toughest part of the SMP.
- Your experience as a mentee.
- Your experience with your mentor, the mentor-mentee fit.
- Your opinion of organization of the program.
- What suggestions do you have for monitoring and improving the program?

**Personal issues**

- Your family educational and socio-economic background.
- Your high school experience - educational and social.
- Your post-secondary school experience – educational and social (when appropriate).
- Your career choice – now and before you started the mentorship program.
- Your attitude and beliefs towards medicine, science, and technology.
- Your feelings toward educational policies, career counselling and training as they affect you.
- How have your feelings toward work change over the years?
- Your attitude and beliefs toward being part of a community.
- How do you see your future?
6. Most important thing that administrators, funders, mentors, researchers and, subsequent participants (mentees) need to know about interviewee's experience.
7. Was there anything that was left out that would further help in the understanding of the interviewee's experience?
8. What was it like to be interviewed?
11. Was the interviewee surprised by any of the questions, and if so, why?

10. On a scale of 1-10, indicate how worthwhile you feel the SMP is (was) for you:

1 2 3 4 5 6 7 8 9 10

Worthless    OK    Worthwhile
Appendix B4: Audio Taping Consent Form

AUDIO TAPING CONSENT FORM

Title of Research Project: Impact Evaluation of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)

Investigators: Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)

I hereby consent to be audio taped during participation in this research project. Tape(s) will be used for preparing a transcript of my interview. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

In addition, I give permission for the transcript of my interview to be used for:

1. Other research projects on the same topic □
   (Check the appropriate box)
2. Not to be used for anything else □

In giving permission for the use of the recordings beyond the current research, I have been offered the opportunity to hear the tape(s) and I understand that I am free to withdraw my permission for other uses of the tape(s) at any time.

______________________________________   The person who may be contacted about the research is:

Name of participant

______________________________________   who may be reached at telephone #:

Dr. Miriam Rossi

______________________________________

Signature

416-813-6146

Name of person who obtained consent:

______________________________________

Date

______________________________________

Signature

______________________________________

Date
Appendix C1: Invitation Letter for Mentors

INVITATION LETTER FOR MENTORS TO PARTICIPATE IN A RESEARCH PROJECT
OISE/UT & Faculty of Medicine, University of Toronto

Study of impact of the University of Toronto Health Sciences Summer Mentorship Program
I am currently involved in a research project under the supervision of Professors Derek Hodson and Miriam Rossi to address the role of mentoring in Black and First Nations students’ decisions to pursue professions in health sciences. In 1994, the University of Toronto Health Sciences Summer Mentorship Program (UTHSSMP) was initiated to address the traditionally low representation of Blacks and First Nations Peoples in medicine and other health sciences professions in Canada. After almost a decade it is necessary to evaluate the impact of the program, in general, and to investigate the role of mentoring in science education compared to other traditional pedagogical strategies. The study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of Toronto.

Your participation in this project will provide useful information on this topic. You qualify for participation if you are a mentor in the program since 1994 or later and mentored during the 2002-2003 session. It is not a requirement that you served continuously from the time you joined as a mentor. I will make observations and take field notes for one hour during one of your mentoring sessions in order to investigate the mentoring interaction between you and your protégé. Under no circumstance will a patient be identified. At a subsequent date, at your convenience, you will also be requested to participate in a private, taped one-hour semi-structured interview. The interview will focus on questions relevant to your ideas and experience as a mentor in the UTHSSMP, as well as your interactions with your protégé.

Participation in this study is strictly voluntary. You may withdraw from the study at any point without penalty. All data from this project are confidential and will be used for research purposes only. A pseudonym and/or subject number will be assigned to all data collected to ensure that no one can be identified. Names of participants will not be connected to any information. You will be provided with a transcript of the interview in order to check for accuracy and to clarify any perceived misinterpretation.

Although there are no foreseeable risks to you as a mentor participating in this study, observation may appear somewhat intrusive. Consequently, patients and/or mentee may become a little uncomfortable. If you feel this situation may be problematic for you, or the workflow of your office, please feel free to decline from participation at any point in this project.

Thank you for your assistance.

Leroy C. Clarke, CTL, OISE/UT, tel.: 905-432-7792; email: lclarke@oise.utoronto.ca
Cc: Dr. Derek Hodson, tel.: 416-923-6641 ext.2657; email: dhodson@oise.utoronto.ca
Cc: Dr. Miriam Rossi, tel.: 416-813-6146; email: miriam.rossi@utoronto.ca
Appendix C2: Consent Form for Mentors

CONSENT FORM FOR MENTORS

OISE & Faculty of Medicine, University of Toronto

Study of Impact of Summer Mentorship Program (UTHSSMP)

I ___________________________________________________________, am being requested to participate in a study of the impact of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP).

I understand I will be interviewed in a private room so that my privacy is protected. The interview will take about 1 hour to complete. The interview will focus on questions relevant to my experience with the University of Toronto Health Sciences Summer Mentorship Program and my life and academic/professional experiences since high school. During the interview I will address issues rather than people, thereby protecting the privacy and confidentiality of others. The interview will be recorded on audiocassette and then transcribed to paper record by a trained research assistant, after which the cassette recordings will be erased. I also agree to be observed by the researcher during one of my mentoring sessions as integral to a study of the mentor-mentee interaction. I also give permission to the investigators to review any relevant reports that I may have released to the UTHSSMP in order to determine any possible correlation between mentoring strategies and participant (mentee) outcomes.

All information will be kept confidential and stored in a locked filing cabinet. A pseudonym and/or subject number will be assigned to all materials collected, so that I cannot be identified. Only the research assistant and principal investigator may access material belonging to this study. I will not be identified in any results of this study.

Risks and Benefits: By participating in this study, I will gain no direct personal benefit. However, this information may help administrators to organize and manage the Summer Mentorship Program to better meet the needs of participants. It has been explained to me that the interview will be straight-forward and relatively stress-free, with possibly some slight uncomfortable feeling at the start of the observation session. However, I do understand that I am free to withdraw from the study at any stage.

My questions about the study have been answered and I agree to enter the study. I have been given a copy of this consent form.

________________________________________________________________________
Signature Date
Appendix C3: Interview Protocol for Mentors

Interview Protocol for UTHSSMP Mentors

Semi-structured Interview or General Interview Guide Approach.
The aim is to obtain high quality evaluative information on a pre-determined set of issues as outlined below. The interview itself is loosely structured and flexible. Although some questions are prepared in advance, they may be altered if it seems appropriate as the interview progresses. Mentors will be encouraged to relax, focus and reflect on the mentoring phenomenon and its impact on their lives and that of their protégés.

Opening statement to the mentors:
I would like to get some insight into the mentoring experience and how it affects your life with respect to your sense of who you are, motivation, career development and job satisfaction, and your perspective on training/teaching and learning. With respect to these issues, please describe, in as much detail as you can, what mentoring means to you.

Issues:
1. Get an idea of mentor’s pre-program sense of self and identity in relation to social consciousness and career satisfaction.
2. Get an idea of how mentor was selected.
3. Get an idea of mentor's experience during the program.
4. Get an idea of reasons for mentoring.
5. Get an idea of how the mentor was impacted by the program.
6. Most significant contribution of mentor to UTHSSMP.

Prompt as needed:

Program issues
- Have you been involved in any other mentorship or leadership program?
- If so, how does it compare with the SMP?
- What aspect of the mentoring experience stand out for you?
- How has the experience affected you?
- What changes have you made in your outlook to life since the experience?
- How were you selected for the SMP?
- Most important aspect of the SMP.
- Most exciting part of the SMP.
- Toughest part of the SMP.
- Your experience as a mentor. Was it more like a duty to be completed?
- Your experience with your mentee, the mentor-mentee fit. Did you keep in touch?
- Your opinion of organization of the program.
- Your opinion for monitoring and improving the program.

Personal issues
- Your own high school experience.
- Your work responsibilities.
- Interaction with protégé.
Feedback from your institution and superior.
Skills or other attributes developed as a result of your role as mentor.
Your post-secondary school experience.
Your career choice. Did you have a mentor who was instrumental in making your choice?
Your attitude and beliefs towards medicine, science, and technology.
Your attitude towards educational policies, career counseling and training.
Your attitude towards work.
Your attitude and beliefs towards community.
Your future with respect to the program.

7. Most important thing that administrators, funders, mentors, researchers and, subsequent mentors need to know about mentor's experience.
8. Was there anything that was left out that would further help in the understanding of the mentor's experience?
9. What was it like to be interviewed?
10. Was the interviewee surprised by any of the questions, and if so, why?

Objective type questions after the narrative portion of the interview:
11. How long have you been a mentor?
12. Do you think it is important that students have mentors who share the same ethnic/racial and or socio-economic backgrounds?

13. On a scale of 1-10, indicate how you feel about your mentoring experience:
   1 2 3 4 5 6 7 8 9 10
   Poor          OK          Excellent
Appendix C4: Audio Taping Consent Form

AUDIO TAPEING CONSENT FORM

Title of Research Project: Impact Evaluation of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)

Investigators: Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)

I hereby consent to be audio taped during participation in this research project. Tape(s) will be used for preparing a transcript of my interview. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

In addition, I give permission for the transcript of my interview to be used for:

1. Other research projects on the same topic □
   (Check the appropriate box)

2. Not to be used for anything else □

In giving permission for the use of the recordings beyond the current research, I have been offered the opportunity to hear the tape(s) and I understand that I am free to withdraw my permission for other uses of the tape(s) at any time.

__________________________________  Person who may be contacted about Name of participant the research is:

Dr. Miriam Rossi

__________________________________ who may be reached at telephone #:
Signature

416-813-6146

Name of person who obtained consent:

__________________________________ Date
Signature

__________________________________ Date
Appendix D1: Invitation Letter for School Liaisons

INVITATION LETTER FOR SCHOOL LIAISON TEACHER/GUIDANCE COUNSELLOR TO PARTICIPATE IN A RESEARCH PROJECT
OISE/UT & Faculty of Medicine, University of Toronto

Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

I am currently involved in a research project to look at the role of mentoring in Black and First Nations students’ decisions to pursue professions in the health sciences. In 1994, the University of Toronto Health Sciences Summer Mentorship Program (UTHSSMP) was launched to address the traditionally low representation of Blacks and First Nations Peoples in medicine and other health sciences professions. After almost a decade it is important to evaluate the impact of the program, in general, and to investigate the role of mentoring in science education compared to other traditional teaching and learning strategies. The study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of Toronto.

Your participation in this project will provide useful information on this topic. You qualify for participation if you are a teacher or guidance counsellor and have been directly involved with the program and are familiar with its impact on students who have participated in the program over a minimum of five years. You will be requested to participate in a one-hour, taped private interview. You will be asked about your involvement with the UTHSSMP and your long-term observation of students who were mentees in the program when compared to non-participant students of similar backgrounds. The objective is to see if there are any significant differences in academic and leadership outcomes between participants and non-participants of the program.

Participation in this study is strictly voluntary. You are free to withdraw from the study at any point without penalty. All data from this project are confidential and will be used for research purposes only. A pseudonym and/or subject number will be assigned to all data collected so that you cannot be identified. Your name will not be connected to any published information. You will be provided with a transcript of the interview in order to clarify, check for accuracy, and to address any perceived misinterpretation.

Although there are no foreseeable risks to you, I realize one hour of your time is extremely valuable and it is understandable if this interview is not feasible at this time. Please feel free to decline from participation at any point in this project. However, your input will be invaluable in finding some answers to the problem of underepresentation of Blacks and First Nations Peoples in health sciences professions.

Thank you for your assistance.

__________________________________
Leroy C. Clarke, Ph.D candidate, CTL, OISE/UT
Telephone: 905-432-7792; email: lclarke@oise.utoronto.ca
Cc: Dr. Derek Hodson, tel.: 416-923-6641 ext.2657; email: dhodson@oise.utoronto.ca
Cc: Dr. Miriam Rossi, tel.: 416-813-6146; email: miriam.rossi@utoronto.ca
Appendix D2: Consent Form for Teacher Liaisons

CONSENT FORM FOR TEACHER/GUIDANCE COUNSELLOR LIAISONS

OISE & Faculty of Medicine, University of Toronto

Study of Impact of Summer Mentorship Program (UTHSSMP)

I ___________________________________________________________, am being requested to participate in a study of the impact of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP).

I understand I will be interviewed in a private room so that my privacy is protected. The interview will take about 1 hour to complete. The interview will focus on questions relevant to my experience with the University of Toronto Health Sciences Summer Mentorship Program and my knowledge of participants and non-participants of similar ethnoracial and socioeconomic backgrounds. During the interview I will address issues rather than people, thereby protecting the privacy and confidentiality of others. The interview will be recorded on audiocassette and then transcribed to paper record by a trained research assistant, after which the cassette recordings will be erased.

All information will be kept confidential and stored in a locked filing cabinet. A pseudonym and/or subject number will be assigned to all materials collected, so that I cannot be identified. Only the research assistant and principal investigator of this study may access material belonging to this study. I will not be identified in any results of this study.

Risks and Benefits: By participating in this study, I will gain no direct personal benefit. However, this information may help the investigators to determine the relationship between mentoring and profession/career attainment. Further, my participation will help administrators to organize and manage the Summer Mentorship Program to better meet the needs of mentees. It has been explained to me that the interview will be straightforward and relatively stress-free. However, I do understand that I am free to withdraw from the study at any stage without providing a reason.

My questions about the study have been answered and I agree to enter the study. I have been given a copy of this consent form.

________________________________________________________________________

Signature            Date
Appendix D3: Interview Protocol for Teacher Liaisons

Interview Protocol for Liaison Teacher/Guidance Counsellor

Semi-structured Interview or General Interview Guide Approach.

The aim is to obtain high quality evaluative information from a pre-determined set of issues.

Issues:
1. Get an idea of liaison teacher/guidance counsellor sense of self and identity in relation to this program.
2. Get an idea of their involvement in the UTHSSMP.
3. Over the long-term, how do you think the program affected mentees?
4. Did you notice any changes in the behaviours of students who were involved in the SMP compared to those of similar ethnoracial and socioeconomic backgrounds who were not mentees in the program?
5. In your opinion, what was the most significant impact of the SMP on participants’ lives:

Prompt as needed

Program issues
- Were you ever involved in any other mentorship or leadership programs?
- Were you invited to be involved or did you volunteer without any solicitation?
- Your experience as a liaison in the program. Was more like a duty to be completed?
- Your opinion of organization of the program both at the school and other levels.

Issues surrounding students, teaching, learning and mentoring
- Your philosophy to teaching and learning.
- Your opinion on targeting selected racial groups for educational intervention.
- Your opinion of the effects of race, gender & socio-economic factors on student success.
- Your understanding and opinion of mentoring.
- Observed differential outcomes between participants and non-participants of similar backgrounds.
- Your opinion regarding educational policies, career counseling and training.
- Your opinion of the aims and objectives of the UTHSSMP (facilitating access to careers in health sciences).
- Your opinion on the direct involvement of the larger community (e.g. mentors) in the educational process.
- Your opinion of the future of the program.

6. What advice would you have for administrators, funders, mentors, researchers and/or subsequent participants (mentees) of the UTHSSMP?
7. Was there anything that was left out of the interview that would further help us to understand the impact of the program on mentees from your perspective?
8. What was it like to be interviewed?
9. Was the interviewee surprised by any of the questions, and if so, why?
Appendix D4: Audio Taping Consent Form

AUDIO TAPING CONSENT FORM

Title of Research Project: Impact Evaluation of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)

Investigators: Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)

I hereby consent to be audio taped during participation in this research project. Tape(s) will be used for preparing a transcript of my interview. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

In addition, I give permission for the transcript of my interview to be used for:

1. Other research projects on the same topic (Check the appropriate box)
2. Not to be used for anything else

In giving permission for the use of the recordings beyond the current research, I have been offered the opportunity to hear the tape(s) and I understand that I am free to withdraw my permission for other uses of the tape(s) at any time.

____________________________________   Person who may be contacted about Name of participant the research is:

Dr. Miriam Rossi

__________________________________ who may be reached at telephone #:

Signature

416-813-6146

Name of person who obtained consent:

__________________________________

Date

Signature

__________________________________ Date
Appendix E1: Invitation Letter for Administrative Personnel

INVITATION LETTER FOR FACULTY OR ADMINISTRATIVE DIRECTOR/FACILITATOR/MENTOR TO PARTICIPATE IN A RESEARCH PROJECT

Ontario Institute for Studies in Education & Faculty of Medicine, University of Toronto

Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

I am currently involved in a research project to look at the role of mentoring in Black and First Nations students’ decisions to pursue professions in the health sciences. In 1994, the University of Toronto Health Sciences Summer Mentorship Program (UTHSSMP) was launched to address the traditionally low representation of Blacks and First Nations Peoples in medicine and other health sciences professions. After almost a decade it is important to evaluate the impact of the program, in general, and to investigate the role of mentoring in science education compared to other traditional teaching and learning strategies. The study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of Toronto.

Your participation in this project will provide useful information on this topic. You qualify for participation if you are a faculty or administrative personnel with the University of Toronto or any UTHSSMP partnering Board of Education and have been directly involved with the development, planning and operation of the program and are familiar with its impact on students who have participated in the program over a minimum of five years. You will be requested to participate in a one-hour, audio-taped/video-taped interview. You will be asked about your involvement with the UTHSSMP, your philosophy and goals for the program, your short-term and long-term plans, successes and failures, observation of past and present mentees, experience with mentors and other stakeholders such as school board personnel. The research objective is to get a global view of the program and its history and for corroboration with other data. I would like to identify you by name when quoting you directly and also to use audio and video clips for presentation purposes. Participation in any aspect of this study is strictly voluntary. You are free to withdraw from the study at any point without penalty. You will be provided with a transcript, audio and video of the interview in order to clarify, check for accuracy, and to address any perceived misinterpretation.

Although there are no foreseeable risks to you, please bear in mind that you will be video-taped during the interview. I realize one hour of your time is extremely valuable and it is understandable if this interview is not feasible at this time. Please feel free to decline from participation at any point in this project. However, your input will be invaluable in finding some answers to the problem of underrepresentation of Blacks and First Nations Peoples in health sciences professions.

Thank you for your assistance.

Leroy C. Clarke, CTL, OISE/UT, Tel.: 905-432-7792; email: lclarke@oise.utoronto.ca
Cc: Dr. Derek Hodson, tel.: 416-923-6641 ext.2657; email: dhodson@oise.utoronto.ca
Cc: Dr. Miriam Rossi, tel.: 416-813-6146; email: miriam.rossi@utoronto.ca
Appendix E2: Consent Form for Administrative Personnel

CONSENT FORM FOR FACULTY OR ADMINISTRATIVE DIRECTOR/FACILITATOR/MENTOR

Ontario Institute for Studies in Education & Faculty of Medicine, University of Toronto
Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

I ___________________________________________________________, am being requested to participate in a study of the impact of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP).

I understand I will be video-taped while being interviewed. The interview will take about 1 hour to complete. The interview will focus on questions relevant to my experience with the University of Toronto Health Sciences Summer Mentorship Program and my overall administrative and operation knowledge of the program and various participants. During the interview I will address issues rather than people, thereby protecting the privacy and confidentiality of others. The interview will be recorded on video-tape and audiocassette and then transcribed to paper record by a trained research assistant. This particular data set will not be confidential.

Risks and Benefits: By participating in this study, I will gain no direct personal benefit. However, this information may help the investigators to determine the relationship between mentoring and profession/career attainment. Further, my participation will help administrators to organize and manage the Summer Mentorship Program to better meet the needs of mentees. It has been explained to me that the interview will be straightforward and relatively stress-free. However, I do understand that I am free to withdraw from the study at any stage without providing a reason.

My questions about the study have been answered and I agree to enter the study. I have been given a copy of this consent form.

__________________________________________________________
Signature

Date
Appendix E3: Interview Protocol for Administrative Personnel

INTERVIEW PROTOCOL FOR FACULTY OR ADMINISTRATIVE DIRECTOR/FACILITATOR/MENTOR

Ontario Institute for Studies in Education & Faculty of Medicine, University of Toronto
Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

Semi-structured Interview or General Interview Guide Approach.

The aim is to obtain high quality evaluative information from a pre-determined set of issues.

Issues:
1. Get an idea of faculty/administrative director sense of self and identity in relation to this program.
2. Get an idea of their involvement in the UTHSSMP.
3. Long-term and short-term goals of the program
4. How do you think the program impacted mentees, mentors and other stakeholders?
5. In your opinion, what was the most significant impact of the SMP on participants’ lives:
   
   Prompt as needed
   
   Program issues
   ➢ Were you ever involved in any other mentorship or leadership programs?
   ➢ Were you invited to be involved or did you volunteer without any solicitation?
   ➢ Your experience as an administrator/faculty member. Was it more like a duty to be completed?
   ➢ Your opinion of organization of the program both at the school and other levels.

   Issues surrounding students, teaching, learning and mentoring
   ➢ Your philosophy to teaching and learning.
   ➢ Your opinion on targeting selected racial groups for educational intervention.
   ➢ Your opinion of the effects of race, gender & socio-economic factors on student success.
   ➢ Your understanding and opinion of mentoring.
   ➢ Observed differential outcomes between participants and non-participants of similar backgrounds.
   ➢ Your opinion regarding educational policies, career counseling and training.
   ➢ Your opinion of the aims and objectives of the UTHSSMP (facilitating access to careers in health sciences).
   ➢ Your opinion on the direct involvement of the larger community (e.g. mentors) in the educational process.
   ➢ Your opinion of the future of the program.

6. What advice would you have for administrators, funders, mentors, researchers and/or subsequent participants (mentees) of the UTHSSMP?
7. Was there anything that was left out of the interview that would further help us to understand the impact of the program on mentees from your perspective?
8. What was it like to be interviewed?
9. Was the interviewee surprised by any of the questions, and if so, why?
Appendix E4: Audio Taping Consent Form

AUDIO TAPEING CONSENT FORM

Title of Research Project: **Impact Evaluation of the University of Toronto Faculty of Medicine/Health Sciences Summer Mentorship Program (UTHSSMP)**

Investigators:  *Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)*

I hereby consent to be audio taped during participation in this research project. Tape(s) will be used for preparing a transcript of my interview. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

In addition, I give permission for the transcript of my interview to be used for:

1. Other research projects on the same topic  □  
   (Check the appropriate box)

2. Not to be used for anything else  □

In giving permission for the use of the recordings beyond the current research, I have been offered the opportunity to hear the tape(s) and I understand that I am free to withdraw my permission for other uses of the tape(s) at any time.

______________________________________   Person who may be contacted about
Name of participant the research is:

Dr. Miriam Rossi

__________________________________   who may be reached at telephone #:
Signature  

416-813-6146

Name of person who obtained consent:

______________________________________   Date

__________________________________   Signature

__________________________________   Date
Appendix E5: Video/Audio Taping Consent Form

VIDEO/AUDIO TAPING CONSENT FORM

Ontario Institute for Studies in Education & Faculty of Medicine, University of Toronto
Study of impact of the University of Toronto Health Sciences Summer Mentorship Program

Investigators: Miriam Rossi, MSc, MD, FRCPC & Leroy Clarke, BEd, BSc, MT, MPhil(Pharmacology)

I hereby consent to be video taped during participation in this research project. Digital video (DV) tape(s) will be used for preparing video and audio of my interview for presentation purposes. I understand that I am free not to participate in this part of the study and that if I agree to participate, I am free to withdraw from this part of the study at any time without providing a reason.

I give permission for:

1. Videotaping of my interview  □  (Check the appropriate box)
2. Audiotaping for presentation purposes  □

In giving permission for the use of the recordings, I have been offered the opportunity to see and hear the tape(s) and I understand that I am free to withdraw my permission at any time.

______________________________
Name of participant

______________________________
Signature

______________________________
Date

The person who may be contacted about the research is:
  Dr. Miriam Rossi

who may be reached at telephone No: 416-813-6146

Name of person who obtained consent:

______________________________
Name of researcher

______________________________
Signature

______________________________
Date
Appendix F: Mentee Application Form, Completed Exemplar

**SUMMER MENTORSHIP PROGRAM IN HEALTH SCIENCES**

**APPLICATION FORM**

**PERSONAL DATA**

LAST OR FAMILY NAME: [Redacted]

GIVEN NAME (S): [Redacted]

ADDRESS: [Redacted]

APT. NO.: [Redacted]

POSTAL CODE: [Redacted]

**EDUCATION**

Name of Secondary School Presently Attending: [Redacted]

Highest Grade Completed: OSSD

Give details of courses completed successfully in High School:

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<th>Year Marks</th>
<th>Additional Courses</th>
<th>Grade Level</th>
<th>Year Marks</th>
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Are you 16 years of age or older? Yes ☑ No ☐

Are you returning to school in September 1995? Yes ☑ No ☐

**CAREER**

(a) What are your career goals?
I wish to become a doctor serving as a medical missionary.

(b) How do you plan to prepare for these career goals?
I plan to enter university and obtain a B.S. Degree in 4 years. From there, I plan to enter medical school and study a specialty in neurosurgery or pediatrics.

(c) List details of your extra-curricular activities:
President, Treasurer, Representative - Student Activity Council; Clarinet and Percussion player - Intermediate and Senior Bands; Volunteer - Mississauga and Credit Valley Hospitals; Tener - School Concert and Chamber Choirs; and Church Verandah

(d) List any special skills:
Leadership skills; work well with children; typing - 30 words per minute; communication/public relation skills; knowledge in basic business practices
PERSONAL STATEMENT

Applicants must answer this question. Why do you want to be involved in this program, and indicate how you might use your experiences when you return to school in September 1995?

Word-processed response on next page

REFERENCES

Please provide the following information about the person who is writing your reference letter. Applicants are reminded to submit their reference letter with this application.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Postal Code</th>
<th>Bus. Telephone</th>
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</table>

Signature of Student: [Signature]

Signature of Principal: [Signature]

- Applicants must send the application to the Continuing Education Department by May 12, 1995.
- Applicants may provide additional information such as a resume or list any additional successful courses completed that support their application.
My name is [redacted] I have attended [redacted] for five years and am presently completing my OAC year. I feel that, due to my scholastic record, extra-curricular activities, and community involvement, I am a worth candidate for the Health Science Mentorship Program for Black Students this summer.

I am proud of a number of significant academic achievements: a B+ average, Honour Roll standing for three consecutive years, placement in the top 25% in Canada in the Canadian Mathematics Competition for four years, and an Award of Distinction for placing in the top ten in [redacted] in the 1992 [redacted] Association for Mathematics Promotion contest. I have also entered the Canadian National Mathematics League contest, the American High School Mathematics Examination, and the CHEM NEWS Examination.

I have long realized that extracurricular activities provide experience and give a sense of personal fulfillment. My most rewarding experience was my term as President of the Student Activity Council during this past year. During the school's 25th Anniversary, we raised money for several projects, including a new school sign and a fund for a student suffering from cancer. I have also served as a Class Representative and the Treasurer for Student Council, worked on the Graduation Activities Committee, played in the Intermediate and Senior Concert Bands as a clarinet player and percussionist, sung in the Concert and Chamber Choirs, advised The [redacted] Connections (an organization that helps new students acclimate themselves to school life), and helped out on the school yearbook and newspaper.

I am also involved in organizations outside of the school. I have volunteered at the [redacted] Hospitals, amassing more than 300 hours working with both the young and old in a variety of departments. I also serve on the Student Volunteer Activities Committee for the [redacted] Hospital and write for its volunteer newspaper. In my church, I am a [redacted] in the youth choir and a Captain in our youth group, Pathfinders, which helps to instill in youth a sense of discipline, responsibility and citizenship. I have taught children from ages three to fourteen in my church and served as a junior deacon.

My lifelong goal is to be a doctor serving as a medical missionary. I wish to enter this field because I enjoy helping people. A career in health sciences is necessary to ensure that I fulfill my goal. I have been motivated to enter this career field by my aunt, a nutritionist; by my mother, a nurse; and by the life stories of Dr. Benjamin Carson, a world-renown paediatric neurosurgeon, and Eric B. Hare, a nurse serving as a medical missionary. My activities and achievements detailed in this essay all have supported my drive towards my goal.

Given the opportunity, membership in the Health Science Mentorship program for Black Students will help me by confirming my desire to enter a career in medicine and enabling me to obtain a better idea of what my future will be like.
Honour Roll (85% and over)

Award of Distinction (Top 10 in [Redacted] Region)
[Redacted] Association for Mathematics Promotion contest, 1992

INTERESTS
- baseball, basketball, football, hockey
- music, computers, singing, reading

REFERENCES
Miss [Redacted]
Volunteer Coordinator
[Redacted], Ontario

[Redacted]
Biology Teacher
The  School
[Redacted], Ontario

Mrs. [Redacted]
Registered Nurse
[Redacted], Ontario
CAREER OBJECTIVE
I plan to further my education at a post-secondary institution in the field of medicine.

EDUCATION
Presently enrolled in Enhanced Grade 12/OAC
The School
Road
Ontario

EMPLOYMENT EXPERIENCE
Delivery Person
Toronto Sun
333 King Street East
Toronto, Ontario
M5A 3X5

News Road
Ontario

Summer 1987-Winter 1993

VOLUNTEER EXPERIENCE
Hospital Volunteer
Neurological, Neurosurgical and Paediatric Wards and Patient Transportation Department
Ontario
Paediatric Ward, Accounting and Cardiopulmonary Departments, and Ice Cream Salesperson, Ontario

ACQUIRED SKILLS
- strengthened communication and public relation skills
- learned effective organizational techniques
- developed and exercised leadership, responsibility and training skills and techniques
- demonstrated personal interaction ability
- acquired ability to effectively supervise children
- increased knowledge in business practices

COMMITTEES AND ORGANIZATIONS
President, Student Activity Council, Fall 1994-present
Teacher, Sabbath School (Kindergarten and Junior /Earlteen Departments), Fall 1993-Winter 1994
Representative and Treasurer, Student Activity Council, Fall 1991-Spring 1993
Second and Third Clarinet and Percussionist, Intermediate Band, Fall 1989-Spring 1992

AWARDS AND ACHIEVEMENTS
200 Hours of Volunteer Service
Hospital Volunteer Association, 1994
Certificate of Distinction (Top 25% in Canada)
Canadian Mathematics Competition, 1991-1993
May 9, 1995

To Whom It May Concern:

[Name] has been a student volunteer at The [Hospital Name] Hospital since July, 1991. During the stay with us, [Name] has accumulated 241 hours, working in Patient Transportation, Paediatrics, The Coffee Shop and various nursing units.

In Patient Transportation, [Name] was responsible for transporting patients to their various appointments within the hospital upon request. [Name] also assisted both the patients and the staff of various nursing units in the hospital by delivering water and menus, visiting patients and completing non-confidential paperwork at the nursing station, to mention only a few.

In Paediatrics, [Name] assisted the Child Life Specialist by providing activities for the children on the unit. [Name] was also responsible for supervising the patients in the playroom and visiting those children who were unable to participate in playroom activities.

[Name] currently volunteers in The Coffee Shop where they serve customers, prepares food and ensures that the Coffee Shop is kept neat and tidy.

In addition to regularly scheduled volunteer work, [Name] is also a member of the Student Volunteer Committee. This group of students dedicate additional volunteer hours by organizing various events, producing a newsletter, training new volunteers and participating in fund-raising activities.

[Name] is a friendly and enthusiastic volunteer. I wish [Name] well in future endeavors! Should you require further information, please feel free to contact me at [Contact Information].

Sincerely,

[Name]

Coordinator, Student Volunteers

[Province] [City]
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# Appendix F: Mentee Application Form, Completed Exemplar - Page 9

## Student Status Sheet

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### Potential Credit Summary

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### Promotion Comment

Diploma or Certificate: D.S.S.D. Granted 05/02

Remarks: 

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<td><strong>Monday</strong>&lt;br&gt;AM Civic Holiday</td>
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<td>Etobicoke Pediatrics&lt;br&gt;Dr. Moodie</td>
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<td>Mentor Seminar&lt;br&gt;MSB</td>
<td>Mississauga&lt;br&gt;Fam Doc&lt;br&gt;Dr. Forrester</td>
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<td>3287 MSB&lt;br&gt;Computer Lab 1&lt;br&gt;Dr. Garg 12-3</td>
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<td>MSB 9-12&lt;br&gt;Anatomy&lt;br&gt;Dr. Leibgott</td>
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**AM** = Morning<br>**PM** = Afternoon
Appendix G: Transcription Conventions

Transcription conventions

[ ] Overlapping speech: the precise point at which one person begins speaking whilst the other is still talking, or at which both begin speaking simultaneously, resulting in overlapping speech.

(0.2) Pauses: within and between speaker turns, in seconds.

‘Aw:::.‘: Extended sounds: sound stretches shown by colons, in proportion to the length of the stretch.

Word: Underlining shows stress or emphasis.

‘fishi-‘: A hyphen indicates that a word/sound is broken off.

‘.hhhh‘: Audible intakes of breath are transcribed as ‘.hhhh‘ (the number of h’s is proportional to the length of the breath).

WORD: Increase in amplitude is shown by capital letters.

(words. . .): Parentheses bound uncertain transcription, including the transcriber’s ‘best guess’.

Source: adapted from Drew 1995, p. 78
I: Thanks so much for taking the opportunity to come in today. I know it must have taken some time to do so. Do you work around here?

W: Yes and No. I am a student. I will be starting a Masters in community health at U of T.

I: Oh! Great.

W: So technically I will be working for the U of T at one of the residences here at U of T.

I: First of all let me just tell you what is going to be involved. I will be talking to you in a fairly unstructured manner. The whole point is to get a sense of how you found the program to be and if it was worthwhile in your opinion and that kind of thing. So we’ll go through some questions and I will not necessary stick to routine but it will follow some where along there. So we will travel along that route and feel free to discuss and provide your input as we go along. o.k. It’s a semi-structured interview.
I: Now tell me a little about who you are. Were you originally born in Canada?
W: I was born in Canada and my family where born in Ethiopia and they immigrated to Canada in 1970. So they have been here for quite some time.

I: Where did you go to school?
W: For high school, I went to Harbord Collegiate at the bottom of Harbord and Bathurst then I did my undergrad. at U of T studying biology and philosophy. So I am still here at U of T.

I: Did the program have anything to do with your deciding to come here?
W: Yes, actually it did. I knew that there was more or less a sort of structured support system at the U of T because at the time I was debating between McMaster University and the U of T. It was a very tough decision because I really wanted to go away from the city and to be in a smaller community in Hamilton. So that was really one component of my decision to come to the U of T which actually turned out to be one of the best choices that I made in actually staying at the university.

I: Good.
W: And another reason why I decided to come to U of T was because I had received a national scholarship when I graduated from high school and at the time there was some problems with McMaster University being a part of the national scholarship so it wasn’t for sure if I went to McMaster whether I would get the tuition waiver so it was strongly urged on my part to attend U of T So initially I was quite upset about it since I original plan was to go to McMaster but then knowing that I had this supportive environment at U of T it really made the decision a lot better.

I: Wonderful! That’s great. Now tell me, before you did the program, were you as confident as you were in high school? What did it add to who you are?
W: I think it definitely put me on a more focused academic track. I think before starting the program, I had sort of aspirations to going into medicine but I don’t think I really understood how hard it is to get in, in terms of how much work you have to put into it and I think definitely coming through the program and finishing the program I got more focused and I knew what steps I had to take in order to position myself to have a career in medicine or a successful university career to begin with. So, I think it definitely gave me more confidence in terms of my career choice and it also allowed me, at quite a young age to be quite focused which I think is half the battle when you’re coming into university to decide well what is it I want to do and already going into first year, I already had a more or less structured plan whereas most people that I had lived with were sort of deciding what to do. And while that’s not a bad thing, I think you loose a lot of momentum too because you could really start off your university career by being quite focused and so I think that definitely helped me to gain confidence.

I: At what grade level did you come into the program?

W: It was the summer before I started my OAC year. So it was in grade 12.

I: Was that a good time to come in?

W: I think it would have been probably more beneficial in terms of helping me choose which courses I need to take as an OAC student if I had done it before I had started grade 12, so I would have had a year to decide what courses I need to take, prepare myself and then enter my final year of university but the only problem with that is that I would have been much younger and so I don’t think I would have necessarily had the same amount of confidence. So I think while it’s a good thing to attract younger students to come to the program because it does allow them time to mentally and academically prepare for university, you run the risk of getting them being too young if they don’t have a sense of what the program can offer them. I think for me it worked out well.

I: So it’s a kind of a toggle between ..
W: Yes it definitely is. I think any later than OAC like if somebody is going into first year university, I think it’s a little late but if the person is mature to begin with I think the younger the better so I think definitely 11 or 12 is really good because they still have time to feel the impact of the program in high school.

I: So, you’d say somewhere between 11 and 12?

W: Yes, somewhere between 11 and 12 but no later than that I don’t think.

I: Give me sense of what you think in terms of how people were selected for the program. W: Well, I guess since when I did the program it was only the second year so the way I heard about it, I didn’t hear about it from any posters or any flyers from the guidance office at my school. I was actually quite interesting because I had received a phone call from my guidance counsellor in one of my classes maybe about a couple of days before the application deadline. She pulled me into her office and she said I know that you are thinking about a career in medicine and that one of your options is the university of Toronto. There is this really interesting program that is starting up at the faculty. You might be interested. I think you should apply and that was pretty much it. I am not sure if she selected anybody else in my high school. I don’t think she did because she didn’t tell me that she had also approached other people. It was more or less a hand-holding process. She helped me with my application, proof-read it for me and so on.

I: Would you say it was a fair system then?

W: I don’t think it was a fair system because there were other people in my class who I know would have definitely benefited from this program but I guess because my guidance counsellor liked me I guess compared to the other students. That’s the only way I found out about it. It wasn’t something that all students had access to. It had gone through her office, she hand-selected whoever she wanted and pushed them on. So, its unfortunate. It worked for me. I guess whoever it works for, it works for them. So I think, when I came back I actually told her. I said well it’s a great program and maybe for next
summer you could have it in the guidance office where you have all the other summer opportunities and maybe advertise it more to other students in that age group and target group. We are part of the minority in that group, to now have a meeting or something like that would be good, but that was my last year so I don’t know what she did. But for me, it wasn’t a fair process. Like, for the other people that I know could have benefited it was too bad that they didn’t have an opportunity to be part of it.

**I:** I should let you know the confidentiality of this so that you can feel free that your name will not be placed on anything with this transcript.

**W:** She is not there anymore at that school so it’s o.k.

**I:** I want you to know that your confidentiality is protected so feel free to be as open as you can about this. Give me a little idea about your experience during the program.

**W:** It was actually an amazing program, which I think was just what I needed at the right time, because I was deciding about what are my options in terms of going to university, what types of programs I am going to take. It was just wonderful because I knew I wanted to go into medicine. I knew I wanted to get into the health sciences but I didn’t know the variety in the field. I had no idea that there were like different types of doctors. I didn’t know there were different types of specialties and also I didn’t really have a sense maybe because of the age group, I was 18 or whatever but I didn’t know what were the steps like concretely. Go to university, take these courses, them you apply, write the MCAT, and do this and that. I had no idea about these steps. It was very beneficial to me at that age. Even if I didn’t understand all this stuff, I was at least exposed. So therefore, when I came into university it wasn’t the first time I was hearing about hard work, studying, motivation and that sort of thing, so definitely it was an amazing time. I got to meet so many different types of health professional that were very helpful and encouraging. It was just the right amount of push that I needed to make it a reality, that I could do this if I wanted to.
I: What part were your parents playing in all of this? Were they playing any part at all?

W: They were. I guess, in terms of big support - they were quite supportive of the program. They were very interested. They were very keen on me taking the full advantage of the program. Going to all the sessions, really getting there on time, never being late. They were very encouraging. They really helped me sort of get the most out of it.

I: Tell me a little about your parents? What are their background like?

W: In terms of professionally? My father is a restaurant owner so he owns 2 businesses. My mother is a registered nurse (full-time) and I have one brother who is now entering U of T in September. There is just 2 of us.

I: What does he plan to be?

W: My brother? Arts. I think he is very much interested in the humanities.

I: What is your parents approach to education? Clearly they are…

W: They are very very supportive... basically education was the only option for us, so since a very young age they have really put a emphasis on academics and also extracurricular activities like piano, swimming all the sort of complimentary activities to school. So they have always been, ever since I could remember, always letting me see the next step. So if I was in grade school and I wasn’t doing well and I didn’t like the way things were. They would say these are really important steps for you to take so that you can go into a high school and then when you were in high school they would also have the next step. They would always be involved, but not so much forceful to the point that it wasn’t my dream too. So it was definitely the collective decision that all of us do. Really emphasis on the education and the more the better.
I: How does that contribute to who you are?

W: Their desire for me to be educated? I think it really give me a sense of self worth. I think that’s how I identified how much I’ve accomplished. There are other aspects of my life that I also take into account but definitely I think academics is a really big part. I think only now after I have finished one degree have I really had a sense of what I have accomplished after those 4 years in undergraduate studies and it was really great because it really give you the flavour for what’s to come. So once you get your first degree you feel you can really accomplish something and you feel like you really have changed as a person for the better, then it really pushes you towards the next step and pushes you a little further. My parents and I have really switched roles - where at a very early age they were pushing me towards academics and then once I got to university, they pulled back and they allowed me to be the force pushing myself.

I: Good! How did the program help you in terms of motivation? Would you say that motivation was a very powerful force?

W: I think it was quite powerful because it normalized the university experience to me. At that age you know you have these sort of romantic notions of university. Oh my gosh its gonna be hard, no one is gonna know anything… just like it’s a very foreign concept. I think it was excellent, excellent that we had to come onto the university campus every day during the program, so it made it seem like I can do this. Like this is something where I feel comfortable being here. So when I came into university it felt right, like it felt that this is where I am supposed to be. So I think, had I not had that experience I don’t know if my first couple of years at university would have been so profound because I would not have had that confidence. Like I know most first year students go through the feeling... am I supposed to be here, what am I doing here, is this what I supposed to be in?

I: Did you find that with students that you came across?
W: Yeah and definitely and I’m not saying that I did not go through it myself but I think it happened in such a way that I look back on how many times I had already been here and it gave me the confidence to know yes I can go up to my professors and ask them questions. I have the power to speak up in class and that sort of thing because I had already done it 2 summers previously. I think it really made an impact and I noticed that people around me didn’t have that confidence necessarily, so I think it really normalized the experience and made it tangible for me. So I think that’s one of the great things about the program And then me picking University of Toronto it was even better because I was already familiar with the university and I didn’t feel it was sort of university verses me which I know that a lot of people experience in such a big institution. Sort of an impersonal institution but because I had already been exposed to campus and to the libraries and to what it’s like to be in a classroom taking notes, and so I think it really, really made a profound impact on how focused I was.

I: You live close by the university, is that correct?

W: Yes, I was.. close to the university campus

I: So it was not like a strange place that you were coming to? Have you been through the campus before?

W: Oh! through the program?

I: Before the program?

W: Before the program, no.

I: Even though you were living close by?

W: Even though I went to high school close by, I have never physically been on the campus.
I: Which high school? Oh! Yes Harbord Collegiate.

W: Harbord Collegiate. I’ve been around, and it’s funny, because previous to the mentorship program I thought well who would want to go to the University of Toronto because it just seemed that its just the U of T because its so close to where I went to high school it didn’t seemed like it was hard to get in, it didn’t seen like it was actually like a really good institution. Once coming into the program I realized it’s the best in Canada. It has everything that you need all the resources that you could ever hope to use as a student. So it really made it, like I didn’t feel like there was a barrier between me and the University.

I: Where you able to help other student who were having this kind of distance in terms of university life?

W: To the extent that I could. I was also more or less in their shoes. I just think that for my experience, I didn’t experience that sort of isolation for a long time as most people did. So to a certain extent I would help students around because they knew that I was from Toronto originally. So I showed them where some of the libraries were and stuff like that but I did not help to any great extent.

I: Did you see any difference with people of colour, Black students verses White students?

W: At the university?

I: Yes, in terms of how they were coping?

W: Well, during undergraduate study, I didn’t know very many Black people. I was living in residence (St. George Campus) and there was only one other Black woman in the residence and she happened to be like 2 doors down from me and I don’t know if just
coincidence, but we were in all of the same first year science classes together and she was quite focused, and very motivated and she was very intelligent. That was the only other Black person or really person of colour that I had seen around the University. I definitely didn’t see any males.

I: No.

W: No. I mean only recently, I think in the last year, have I actually physically made the connection that oh there are a lot more black males on campus whereas I had never made that connection before. So it was interesting because we became really good friends you know quite early on. And another thing is that I found that much Black people, Black women specifically were not in the sciences. They were in humanities and other disciplines other than the sciences.

I: What about Aboriginals?

W: Natives?

I: Yeah, First Nations People.

W: The first time I actually noticed there were First Nations on campus was last year when I took a Natives course on Native Canadians, but I don’t remember ever seeing any.

I: What would you say was the significant impact of the Summer Mentorship Program?

W: I think for me, like I mentioned before, the program allowed me to be motivated, continuing motivation to university and really gave me some sense of confidence that I could achieve a university degree and go on to do post-graduate work. So definitely focus, motivation and confidence.

I: Confidence eh!
W: Definitely, confidence.

I: Were you involved in any other mentorship programs or any other leadership program?

W: In high school?

I: High school or in your community?

W: Ahm! I’m trying to think. Ahm! I went in the 10th grade I went to eh I guess like a leadership conference. I forgot what it’s called but they take high school students from across Canada and they sent them to Ottawa and they spend a week in Ottawa learning about whatever subject they chose. So I chose science and technology. The whole week learning about science and technology, learning about the city of Ottawa, learning about the governments and learning about how to be a student leader for your school so I did that in the 10th grade then I did this program.

I: O.k. so there was nothing else in your community that you did? As a leadership initiative?

W: Not really. Through high school, I mostly volunteered at a hospital. That was pretty much the extent of my involvement.

I: What about the church or community organizations?

W: Not really.

I: No leadership role in your church?

W: No.
I: O.k. So how did that program in Ottawa compare with the Summer Mentorship Program?

W: It was first of all, much shorter and I found that it wasn’t so much learning about leadership as it was just giving students the opportunity to meet other motivated individuals. I think that’s pretty much what it was just a chance to meet people across Canada, other people who were active in their school. So I didn’t come away with any big sense that I had really achieved at all from that program. I think what I definitely learned was about the city of Ottawa, and again I guess it gave me more of a sense of confidence than I had before; only a little bit only because I was away, you know all by myself, living with the other students so it gave me a sense of I guess, maturity but definitely not to the same extent as the Summer Mentorship program.

I: Did you meet any other people of colour, Black people?

W: No. I was the only one.

I: You were the only black person in Ottawa?

W: In that program. Yeah, cause there was about 100 students. I was the only one that I can remember.

I: From all over Canada?

W: All over Canada

I: Wow! that’s interesting yeah! (laughed)

W: (laughed).
I: I’ve asked you about how you were selected for the Summer Mentorship Program and you said that you don’t think it was all that fair because of what happened. Tell me, what was the most important aspect of the program itself. You told me that the confidence building was important to you but in terms of the program itself, what?

W: I think learning about the next step was for us; people in the program concrete steps. You know, its great for high school students to learn about all the different types of careers in health sciences but without learning what were the steps ABC and D to get there, then its sort of pointless because you are not really connecting with the present, the student, as you know right here and now to 5 years down the road. I think learning about working hard in university, what are the skills that you need like learning about taking notes, learning how to focus when you are reading, I mean thinks like that were definitely just key steps or key skills that I picked up through the program that I started using when I sent back in September. So I think that without really having things like that, that sort of linked your desire to go into the health sciences and how are you able to move to that step.

I: Remember we talked about the possibility of having it a little earlier but you were able to use some of the skills that you had just learned the previous September.

W: Right away…? Yeah! That’s why I wouldn’t, go any younger than somebody in the 12th grade. I mean, like I said before there are some definite benefits and there are also some things that sort of might get lost by the time the students gets to university.

B Yes.

W: So I think definitely giving the students those skills that they can use right away when they go into university.

I: You had people who would help you to choose your subjects during high school, did you have that kind of support?
**W:** My course selection? I was pretty well on my own, cause again in terms of my community, the people that I knew of were not able to help. I was really the first one to start going to university so I didn’t really have much help other than my parents.

**I:** Did your parents go to university?

**W:** My Mom and Dad did yeah, but that was a long time ago and wasn’t, in North America.

**I:** Where did they go to university?

**W:** I think in Addis Abba, the capital of Ethiopia and I think in Europe. I don’t know very much details but in terms of actually going through the Canadian educational system, they hadn’t done that so in terms of taking this course or that course, what to take, what was important, I was pretty much just, I wouldn’t say left on my own to decide but I had to really depend by myself to actively go out and get the information that I needed. So I would definitely go out and speak with the registrar of the university, meet other first year students and go to seminars that they held. Other than my family giving me advise like, oh I know that biology is important, you must need it if you want to get into medicine, there wasn’t really anyone saying well, to get into medicine at U of T you really don’t need ABC courses, you need XYZ courses. So I pretty much was on my own, but once I was in the university and taking the courses, there were definitely the resources I need as a student to make my decisions, but previous to that, not much help.

**I:** What was the most exciting part of the SMP?

**W:** I think actually visiting the patients one on one with the physician and going into the operating room, watching surgery, at least getting a hands on feel of what the day to day life is like for a health professional. Especially at such a young age, how many seventeen year olds go into an operating room. I remember one situation where I was brought into
the operating room with one of the mentors and I think there was a medical student in the room as well, so it was quite a packed room and she was talking to me and asking me some questions and was shocked when she found out that I wasn’t in university never mind that I wasn’t in medical school and that I wasn’t finished high school. She was just floored. She said you are really lucky. I’m like in second year med school, this is my first time. So that for me was just eye-opening and something, I don’t think I even expected that from this woman because I didn’t have a real understanding of what I’d been doing during the day. But once I’d been there for a week or two weeks, it was just a very exciting program and every day was like a new excitement, a new opportunity to learn something.

I: What was the toughest part of the program?

W: I think the academic component probably was one of the more, I wouldn’t say hard, but it was probably not as exciting as the going in and visiting the doctors and so on, only because it was such a short amount of time and there were a lot of academic expectations, because it was a course and you get a credit for it. There was a lot of academic expectations for such a short amount of time, and because it was only the second year of the program, there wasn’t that much structure in place. We were given projects to do but I don’t think there was really an understanding of how long things actually take. So luckily, I didn’t work a part-time job so I didn’t have to rush to work at the end of the day.

I: Yes.

W: I could go home and work on my project. Whereas, I know a lot of my peers maybe they weren’t in the program but all they did all summer was work because they knew that if they were going to university in a couple of years they need to work. So I think for me it was fine, but I know if I had other work responsibilities things would be different.

I: Tell me about the actual academic component!
W: Yeah, to my, all of what I can really recall it that we had to do a huge research project
where you would take like a health problems you know diabetes, heart disease, go to the
library gather all the information you can put together …? that was the final part. So you
would be basically working on that throughout the six weeks you were here in addition to
that we had to every day write journal responses and every week the instructor would
give us additional mini projects for example you know, doing this short story or write
about something so for such a short amount of time it was quite a bit of work but like I
said at least I had the time to do it and I didn’t have any other commitments in terms of, I
know some… has to work to help their families so.

I: Tell me a little about your experience as a mentee.

W: I think what makes a really good mentee is a mentor really you can’t have one
without the other so the only reason why I think I had gained so much out of the program
was that the mentors really were interested in showing me around, they were really
interested in letting me know all about the stuff they wanted to show me, they were very
excited that I was there and definitely didn’t waste any time in giving me tours of their
office and letting me know and kinds, and answering all the questions I had

W: so I think the reason I was so excited and got so much out of it was because I had
mentors which was incredible. You could that they were definitely keen and interested
and you know of course it reflected on the mentee.

I: I don’t want you to tell me the names of mentors but I want you to be very frank with
me as to how your relationship with you mentor and what you thought about them.

W: So well, I guess when I did the program every day it was a different mentor so it was
a very, the relationship was quite short, you know, a morning, an afternoon or an entire
day. So the way that I got a sense that I really got a lot out of it was, the mentor would
show me around in the morning, perhaps meeting patients, going to the operating room, then at the end of the day, they was always like a debriefing where they would you know ask me how I was doing, what was the most exciting part of the day and give me the opportunity to ask any kinds of questions that I had so I think, cause we only had a short amount of time with different people, the ones with, the opportunities that, oh sorry! the experiences that I got a lot out of were when the mentor took the time to sit down and allowed me to ask the questions and then answered them.

**I:** What was the fit like in terms of.

**W:** Yeah! I mean.

**I:** I suppose time was short?

**W:** Yeah! like I said you are only there for maximum a day, if not that morning, an afternoon. Some, I remember some mentors were very very great. I mean they would take me out to lunch and this would be more of an opportunity to get to know them, learn about their experiences whereas others, they were so busy with their practice or whatever it is they were doing that they really didn’t have a chance to get into much depth as I think they would have liked so I mean it really depends on how much the mentor puts into the experience cause then it really reflects back on the student.

**I:** Have you kept in touch with any of those mentors?

**W:** No. Not really.

**I:** Not really?

**W:** Mostly the people who were at U of T vis a vis administrators of the program and ran the program were the people that I mostly stayed in contact with because the relationship was longer like I would see them all the time whereas the mentors you would only see
them for a really short amount of time and you really haven’t have a chance to develop any kind of relationship.

I: Does that really impact you life? The mentor? Could you say the fact that you had this person x in your experience is something that keeps you thinking about or..?

W: Definitely, cause that person will always come back on check up on you.

I: I am talking about your life today?

W: Oh! today! definitely. …

I: Do you see that kind of experience working out in your life today because you were in contact with that person?

W: Definitely! A lot of my summer opportunities that I did, lots of my summer employment opportunities were a direct result of being in contact with the mentors. Also, you know, if I had any questions about anything, what are the next steps I should be doing, definitely the mentors were always there to give me assistance.

I: So you could, did you?

W: I felt comfortable, I could always e-mail.

I: So you did e-mail them back and talk to them?

W: Yep! Yep! throughout my undergrad.

I: Throughout your undergrad? So when did you stop the contact?

W: Oh, I haven’t really stopped more or less its sort of ongoing.
I: So you do keep in touch with mentors intermittently?

W: Intermittently, yeah.

I: Ah!. Tell me a little about your own opinion about mentoring and how you can improve this program?

W: Oh well, (laughter) well. I think um..

I: What’s your opinion of mentoring?

W: Oh in general?

I: General, yeah.

W: I think it’s a fabulous thing. I think especially for minorities and Black people because you don’t see very many, I mean there’s not really systems in place like there are for other people so I think mentoring, especially I this context is really really important and it does make a difference pretty much ..in the bottom lines and I think the only way somebody can get a lot out of mentoring is when both the mentor and mentee are a good fit and they work well together cause if you were really motivated and interested the mentor of the student isn’t really receptive to that, them you can’t really have a productive mentoring relationship so its definitely the both parties to be you know focused and definitely motivated to work to gather and that’s when the mentee will be able to you know achieve more things. So, I think it’s a great experience and I would, it should be that every student have a mentor because really that’s just the way how it is and you can’t really necessarily know how things are going to be down the road and it’s good to ask somebody who is more or less gone through those experiences.

I: So in terms of making a pick between mentee and mentor do you have any suggestions?
W: I think it’s important to, for the mentor and the mentee to I guess really go through what their expectations are and what they can offer. For the mentor its important that they have an understanding of what their expectations are and what they can offer and then for the mentee again to go through what their expectations are and what they hope to gain from the mentor and I think only when those sort of fits and when there is a pair, that’s when there is a successful relationship.

I: How could we improve the Summer Mentorship Program?

W: My suggestion would be maybe not to have the students, again I don’t know how its changed since I have been in the program but from when I was in one thing I would like to see is to have the mentoring relationship be a lot longer. For example, “

I: How long?

W: I would say like to be with a mentor for a week or three days minimum cause that when you really get to have the opportunity to be in..? a with you mentor cause while I think while one day is great, seeing somebody different day you really get a sense of all there is in the health sciences but I think that at that stage in the student’s life, that really isn’t what they need, they probably need more one on one attention with the mentor. So I think that would really make the mentoring relationship last longer.

I: Tell me a little about your high school experience? em before and after the program?

W: I think before the program, I still was you know active in high school like gone to that leadership conference, I would say that I was quite active, but I think that on upon my return I was even more active.

I: That’s after the program?
W: After the mentorship program, I think I realized how much I had gained from that summer and I really wanted the make the program more visible and I think just a loft more, I think since I was a lot more confident, I took on more things, more projects, more extracurricular activities. I worked a lot harder at my school work so I think I could definitely looking back see a sort of shift, you know from being motivated before the program to being quite motivated afterwards.

I: O.k. and your post secondary school experience, I think we’ve spoken about a little that but is there any?

W: Definitely.

I: Is there anything to add to that?

W: Not really.

I: What about your career choice?

W: (laughed) What is career choice? (ha! ha!)

I: Ahm!. with respect to the program, what can you say about that?

W: I definitely do still have a desire to pursue medicine and so I am hoping to do at least degree including a masters program, so I still definitely on the education track and I think the Summer Mentorship Program definitely gave me the motivation to realize that it’s a long road but you know what it is that you want and you know that is it’s a good fit for you then you can reach it and I think that what’s make thing that appear unattainable attainable is that you really know that you can do it that’s the only way.

I: We’ll also take a look at your academic transcript to see, we’d like to see if there is any change after the SMP verses before the SMP.
W: O.k. high school, yeah.

I: Yeah, and even up to this point. Would you say there was a definite change in you academic performance?

W: I don’t know what my high school grades previous to grade 11 were but I can’t imagine they were poor, I wouldn’t say that there was a huge shift like definite percentage points but I think it just allowed me to maintain a lot of motivation and you know focus.

I: At what grade point average do you end up with?

W: I think I left with about a 3.6 in university.

I: 3.6, that’s good. (sighed). Tell me little about your attitude and beliefs towards medicine, science and technology.

W: Well, good question (laughed).

I: Attitude towards the fact that you went through the program, your attitude toward medicine, towards science, towards technology?

W: I think what it did, it allowed me to see that there is diversity within the field. I think before I had done the program, the idea of medicine and health science was like one entity your either a doctor or you could not be a part of it you know, being part of medicine, being part of the health sciences but I think definitely coming through the program, and coming to university I realized that its really like a collaboration of different health professionals and I didn’t really have an understanding of that previously. So knowing that there’s like nurses, pharmacists, medical professionals, counsellors, it’s like a team. I think previous to the program, I had just thought of o.k. medicine, you go to the doctor, whereas now medicine equals a team of professionals.
I: So how does that influence or impact your attitude towards…?

W: I think for me, it did really give me a sense of how about pursuing other health professions. I think it just allowed me to realize that if I decided not to do medicine, there are other disciplines that I could go in there still linked to the health sciences but I think ultimately for me it’s a desire you know to combine science with working with people, I think that it allowed me just to maintain working, wanting to obtain a goal..?

I: Now, your attitude towards educational policies, career counselling and training, how did the program impact your opinion?

W: I think for me, in my case, I was quite fortunate where I had a guidance counsellor who appeared to be looking out for my best interest em, but I think as a whole, I don’t think it’s like that but I think for me it was definitely an exception. I found that guidance counsellors at my school and at my friends schools definitely pigeon holed individuals based on what the guidance counsellor thinks that that person should be in so like if a student is doing lets say mediocre in high school, then it seemed to me that the guidance counsellor would push them towards a college program not realizing that just because a person was not achieving their optimum now doesn’t mean that they can’t later or they won’t you know next year get to university. I think definitely if you don’t have a strong family network at home pushing you to go to higher education, it’s very easy for people to get swayed by whatever the guidance counsellor tells them.

I: How could we in education, as an educator for example how could we do something about this, what can we do to make a difference in this area to stop that kind of thing, pigeon holing?

W: I mean, I guess it turns people back to school who …? trains those education counsellors. I mean it’s easy to say yes screen them for biases but, I mean you can’t but I think definitely making sure that they give equal treatment to all the students so give students all their options, not just the option that they think it best for the student so if the
student comes in saying well I don’t know what to after I finish high school, instead of
saying well looking at your grades, you know you have only achieved a C average. I
think you should go to college, letting them know that if you want to go to university, this
is what you need, if you want to go to college this is what you need, if you want to just
work after high school, this will be your options but definitely giving students the
opportunity for them to make the decision and just giving them all the options. Well I
think when people specifically counsellor pigeon hole people, the students, I mean pigeon
hole people because they don’t know of other options out there so I think definitely
ensuring that counsellors.

I: How early should this start?

W: I think it should start once they reach high school cause there is no OAC they only
have 4 years to be in university. I think even if you don’t encourage the students to pick
what they want to be in grade 9, just giving them a sense of you know these are the
options you could follow after high school, this is what you need to achieve em when you
are in high school of you want to achieve…? So, definitely exposing students at an early
age when they are entering high school and then every year building on that.

I: That’s great, great. Ah! your attitude towards work?

W: Work? em?

I: Yeah! Did the program have anything to do with how you approach work? work as in a
career?

W: I think what it had done for me is to give me a sense of working to be an extension of
what you want to do so if you were going to choose medicine as your work or your
career, make sure that it’s something that you really are going to get a lot of joy or
pleasure out of it and know that you can ..? Otherwise is a really tough program to get
into if it’s not what you want so there are a lot of students who went through the program
and in the end realized medicine wasn’t for them but I think that’s also a good thing too because otherwise they would have thought medicine was what I wanted, gone through the expensive and long process of becoming a doctor and them realize that they don’t want to do that any more.

I: Did you find some students like that?

W: Yeah! definitely. I know of students.

I: On a percentage basis could you hazard a guess?

W: As a guess, I mean I only kept in contact with one other person in the program and she is now not deciding to pursue medicine because she realized she has other interests so since I’ve only kept in contact with only one person, that’s the only way I that I keep in touch but I think that?

I: Would you say that was a positive thing?

W: I think in her case it was positive because she I think could make a lot more impact following something that she wants to do which I think was something in architecture. It’s definitely a profession and there needs to more representation in the profession impression so I think its important just to allow students to do what they want to so you know often times you know maybe parent or family push them to go into medicine and they get into the program and they have any understanding of what they need to do and when they get to university and then realize that this is not what they want to do, and I think that’s also important.

I: Good, good. Tell me a little about your attitude towards and beliefs towards your community? Yeah! your attitudes and beliefs towards your community as of where you live as well as community as a specific group of people?
W: I Think one of the most important things that the program gave me was how being a mentee you can turn around and be a mentor so I mean definitely what I feel that I have done whether directly or indirectly, is sort of encourage other people, people in my community, other younger people to pursue university, not necessarily medicine ..? the majority of them are quite young to make any decisions but definitely to realize that there is you know a next step after high school so I think definitely letting them know that, you know, that university is possible, you know, you can you know succeed while you are in university. That is one thing that I definitely gained in this program is to turn around and you know, reflect that back on younger people.

I: That’s wonderful. Ah! Do you actively do this or is something that you think about?

W: I don’t think I actively, I don’t necessarily go out and talk to people on a structured basis but definitely you know on a more unstructured basis, within family gatherings and stuff like that.

I: Did you actually pinpoint the SMP as being responsible to some extent for that?

W: I think so, I think so, because that’s when I really had an understanding of what was mentoring and what’s involved, so I think it definitely allowed me an opportunity to go back, because I had experiences to share now and let them know that they too should participate in this program if they are thinking of the a career in the sciences.

I: Great! We talked a little about your future but is there anything you want to add as to your future and...?

W: Other than you know, pursuing medicine and continuing to work with students however that’s possible in the future, that’s pretty much what I had envisioned for myself.

I: Suppose medicine didn’t happen. What then?
**W:** Em, I guess for me that I would always keep trying, keep on trying so I think definitely if I don’t get in, I, like last year I had applied and was unsuccessful and now I am going for my masters and then I will be applying again at the end of my masters and I don’t get in I would work and then apply again so I going to give it a few more times (laughed) before I think about what to do.

**I:** Yeah, yeah, that’s important. I would strongly encourage you to follow you dreams and make it happen because you are the one that have to make it happen especially at this stage.

**W:** Em.

**I:** Now, the most important thing that administrators, funders, mentors, researchers and subsequent participants which are mentees need to know about your experience? What, what, would you say?

**W:** In the program? Em!

**I:** Yeah, well there are different ones…? Em, funders, administrators, there are people who fund this program, what would you tell them?

**W:** What would I tell them?

**I:** Yeah! yeah, what should they know?

**W:** I think they should know that it’s really important that the program has to be funded. One of the good things about when I’m done the program, I’m not sure if it still works today but we got compensated for being in the program, like as in terms of a scholarship or bursary and I think for most people especially now that university is getting so expensive, that if a student is confronted with A getting a job, and working all summer maybe it’s not something not related to my career perhaps its working at a book store in a
shopping mall, or doing this program and not getting paid, its too bad that most often students are going to have to pick the option that gives them some financial you know, rewards so I think it’s so crucial that the program comes attached with financial employment because it gives students who are from you know maybe lower income families, or who working is the only option, allow them to go on an pursue this really beneficial program while not sacrificing other..?

I: What about mentors, what would you say to them?

W: I think what I would say to them is just to really just take an interest in the mentee and to give them as much advise and you know, letting the student know a lot about their own experiences and what is was like for them going to university and applying to medical school and I think once that happens, the student will have an understanding of o.k. I know this person did it this way, and this person did it that way and so they get a sense of is this is for me and there are lots of ways that they can get to the eventual goal.

I: Any word for researchers and for educators, teachers because as a matter of fact that’s where it has to come from? Do you agree?

W: Right! I think definitely from the educators to really have the program advertised in high school, because I think they can definitely push students at high school to apply to the program and even while in the program, really again push the students to keep doing their best and putting a lot into their academic component.

I: Is there anything that we’ve left out that could help us to understand your experience as a mentee? Is there anything?

W: I can’t think of anything , I think we have pretty much touched on a lot of aspects.

I: What was it like to be interviewed today?
W: It was actually quite nice because it gave me a change to actually put into words, you know, my experience I the mentorship program.

I: Was there anything that surprised you? Any question that was strange and surprising?

W: No. I think what I never really paid any attention to before was what role, you know, the people who financially backed-up the program or what advise educators could have. I don’t think I really put a lot of thought into that previous to this so it was surprise but it was o.k.

I: In retrospect, on a scale of 1 to 10, indicate how worthwhile you feel the SMP was to you?

W: Shall I go there, just to circle it?

I: To circle the one that you think applies to you.


I: It certainly was a wonderful opportunity to talk to you today.

W: Thank you.

Note: Point on scale indicated by Winsome:

On a scale of 1-10, indicate how worthwhile you feel the SMP is (was) for you:

1 2 3 4 5 6 7 8 9 10
Worthless          OK         Worthwhile